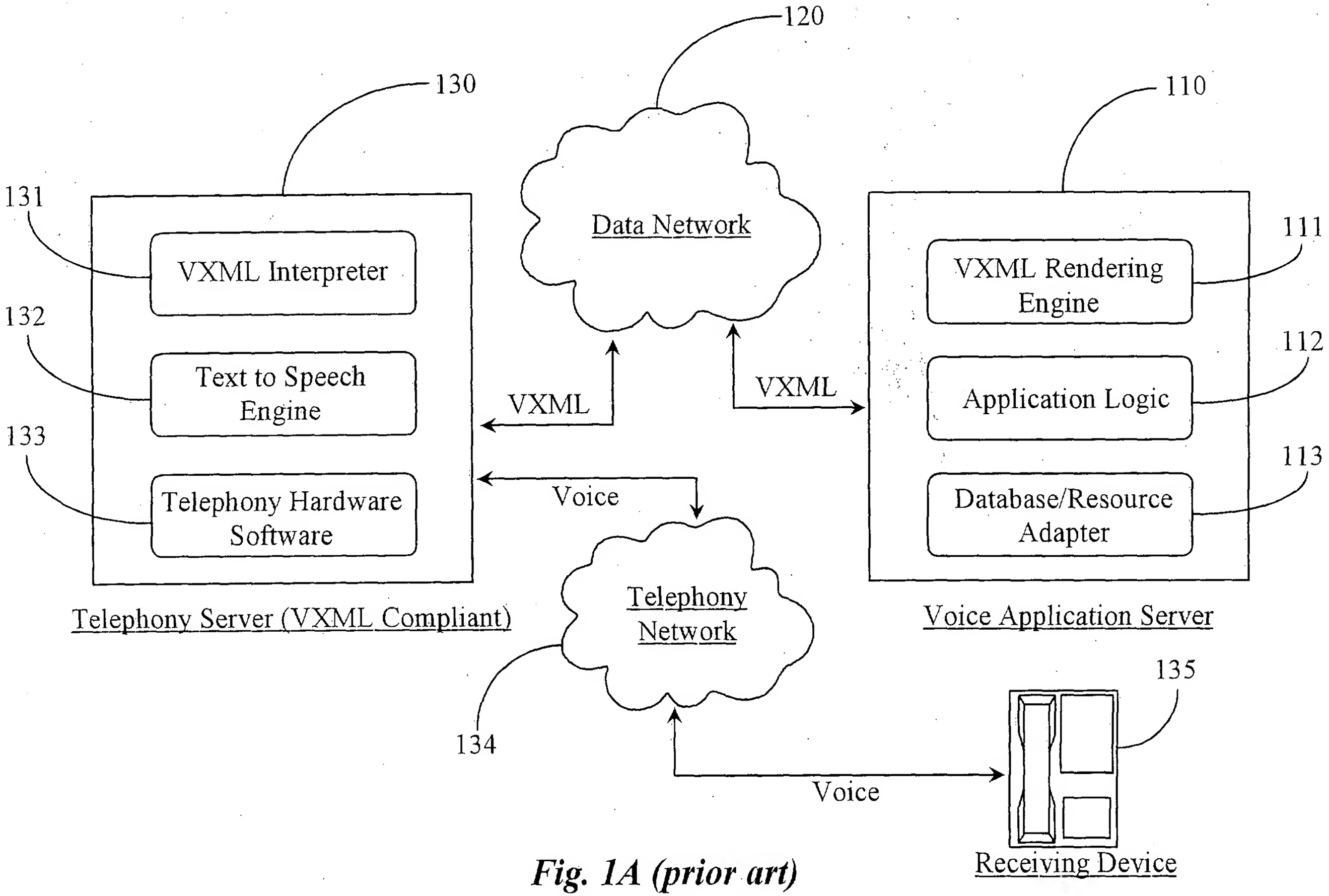


Fig. 1A (prior art)

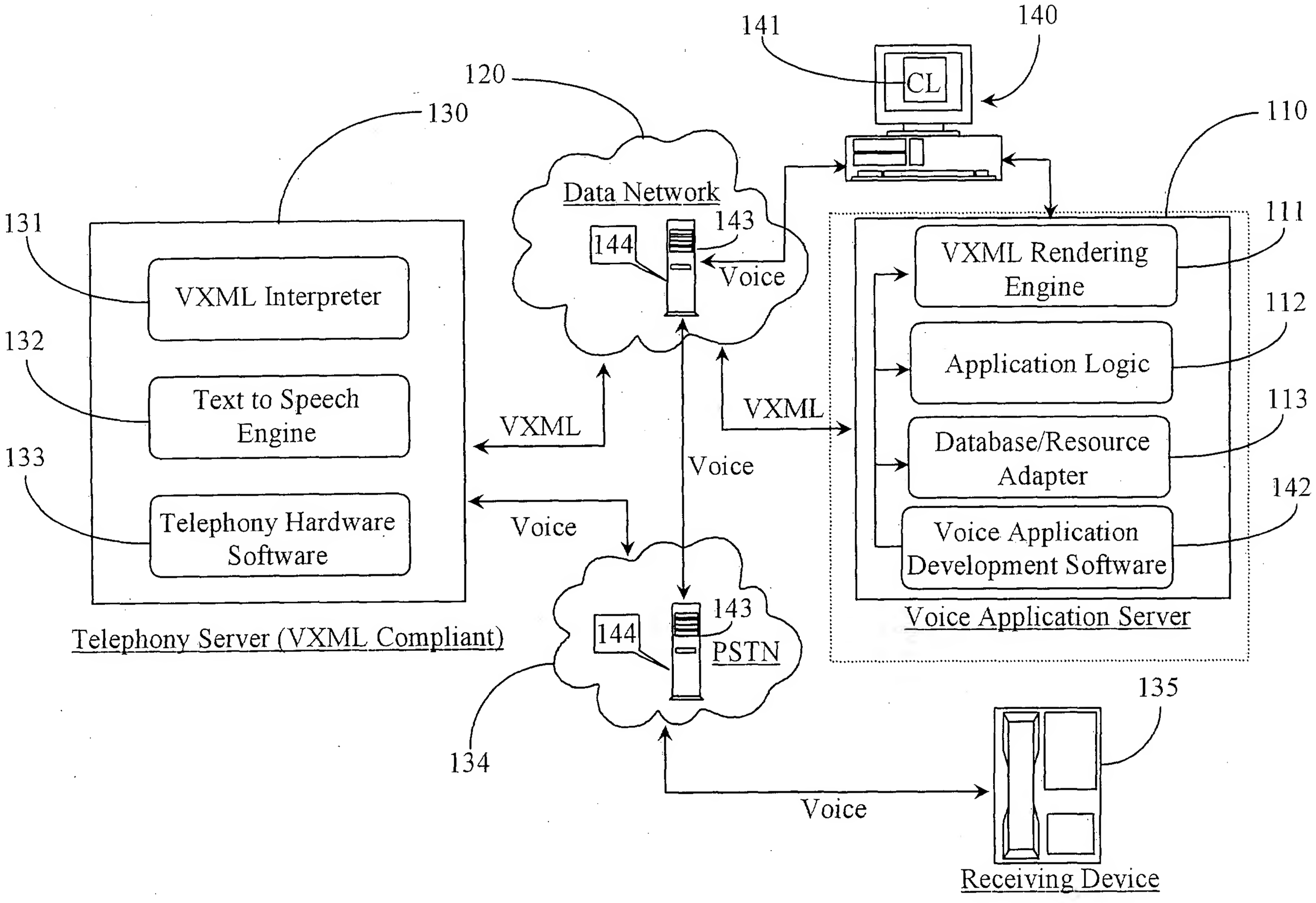

141
140
CL
120
130
110
Data Network
143
144
Voice
131
111
VXML Rendering Engine
VXML Interpreter
132
112
Application Logic
Text to Speech Engine
113
VXML
Database/Resource Adapter
133
Voice
142
Telephony Hardware Software
Voice Application Development Software
Voice
Voice Application Server
143
144
PSTN
Telephony Server (VXML Compliant)
135
134
Voice
Receiving Device

Fig. 1B

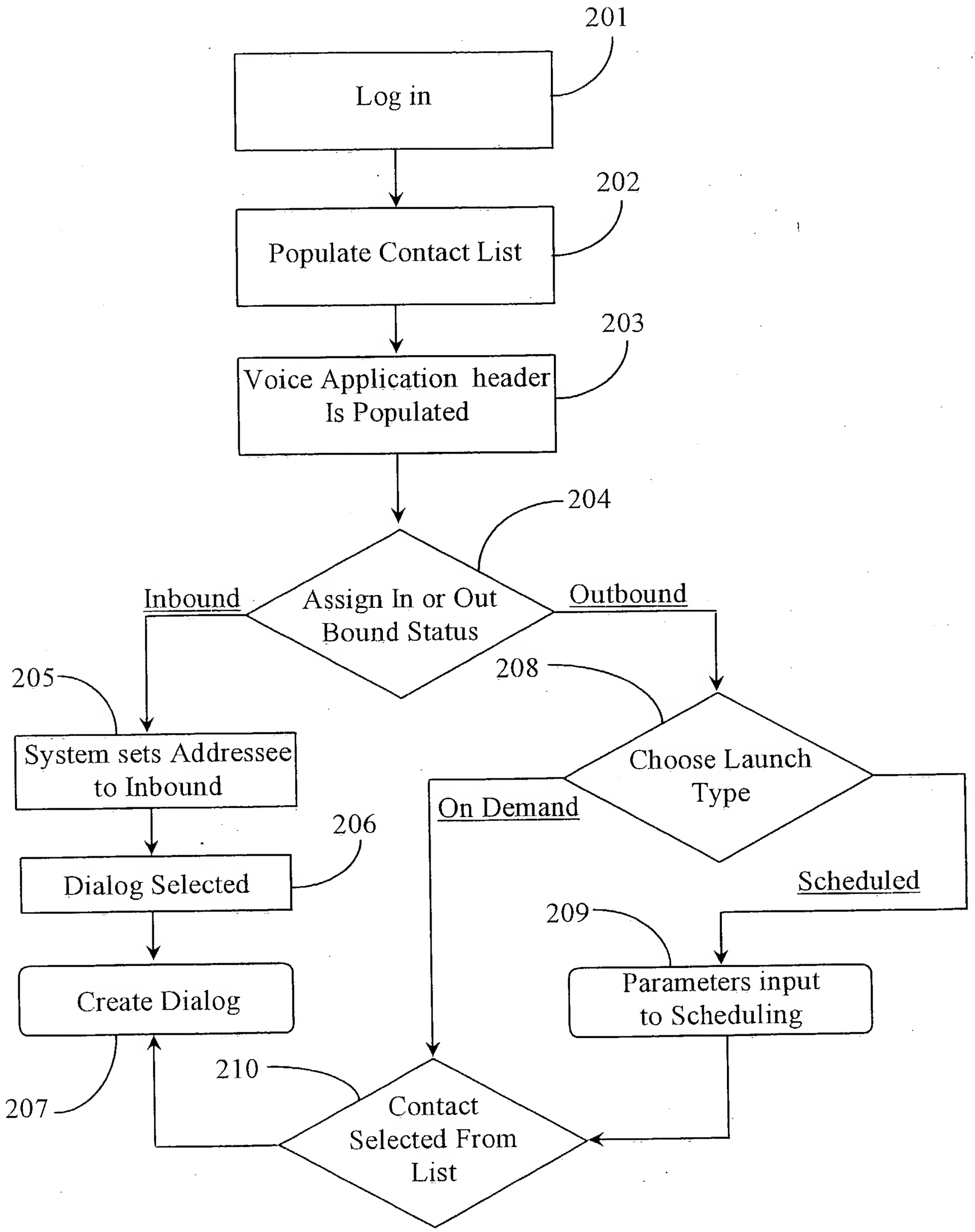
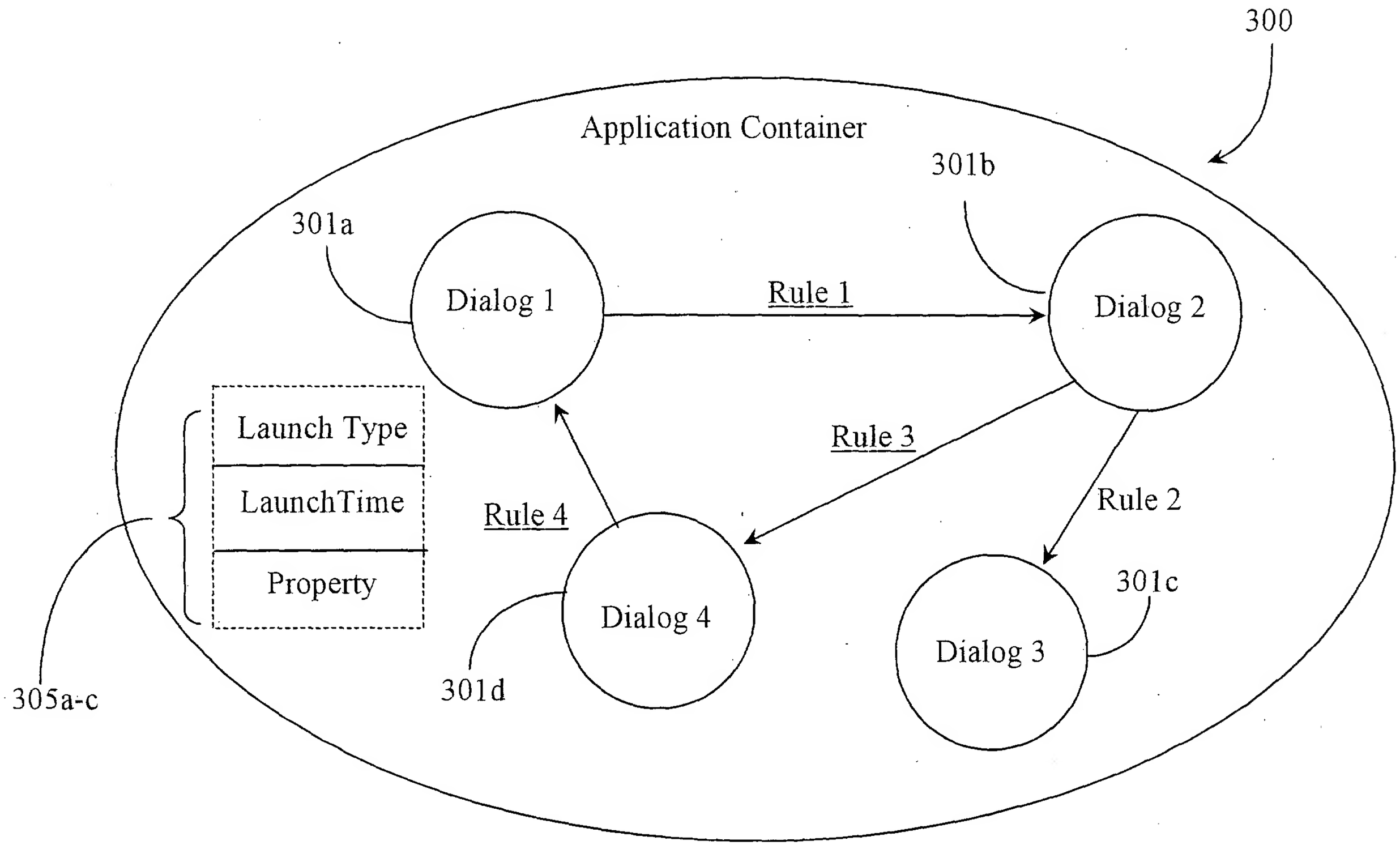

201
Log in
202
Populate Contact List
203
Voice Application header Is Populated
204
Assign In or Out Bound Status
Inbound
Outbound
205
System sets Addressee to Inbound
206
Dialog Selected
Create Dialog
207
208
Choose Launch Type
On Demand
Scheduled
209
Parameters input to Scheduling
210
Contact Selected From List

Fig. 2



Voice App Object Model

Fig. 3

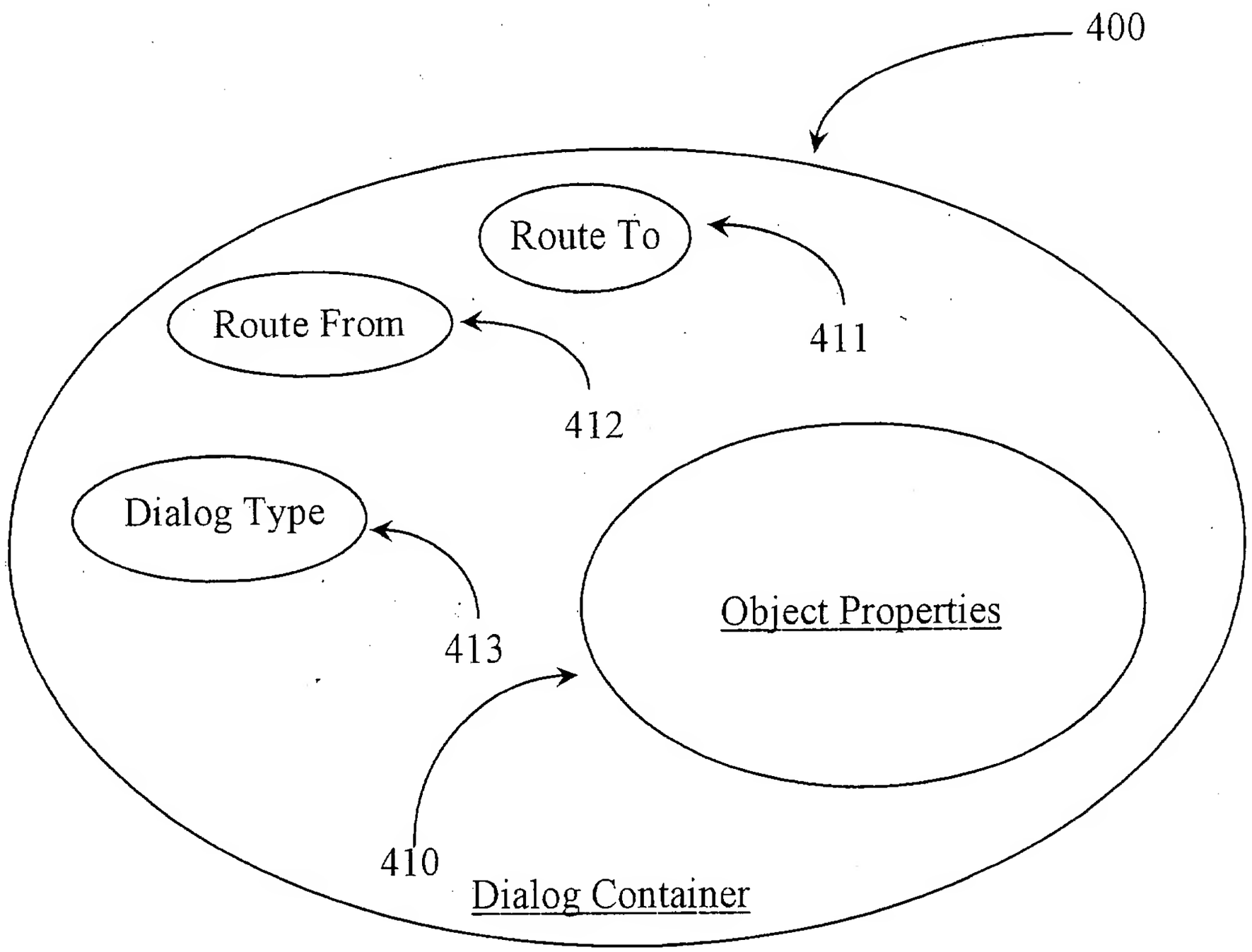

400
Route To
411
Route From
412
Dialog Type
413
Object Properties
410
Dialog Container
Dialog Object Model

Fig. 4

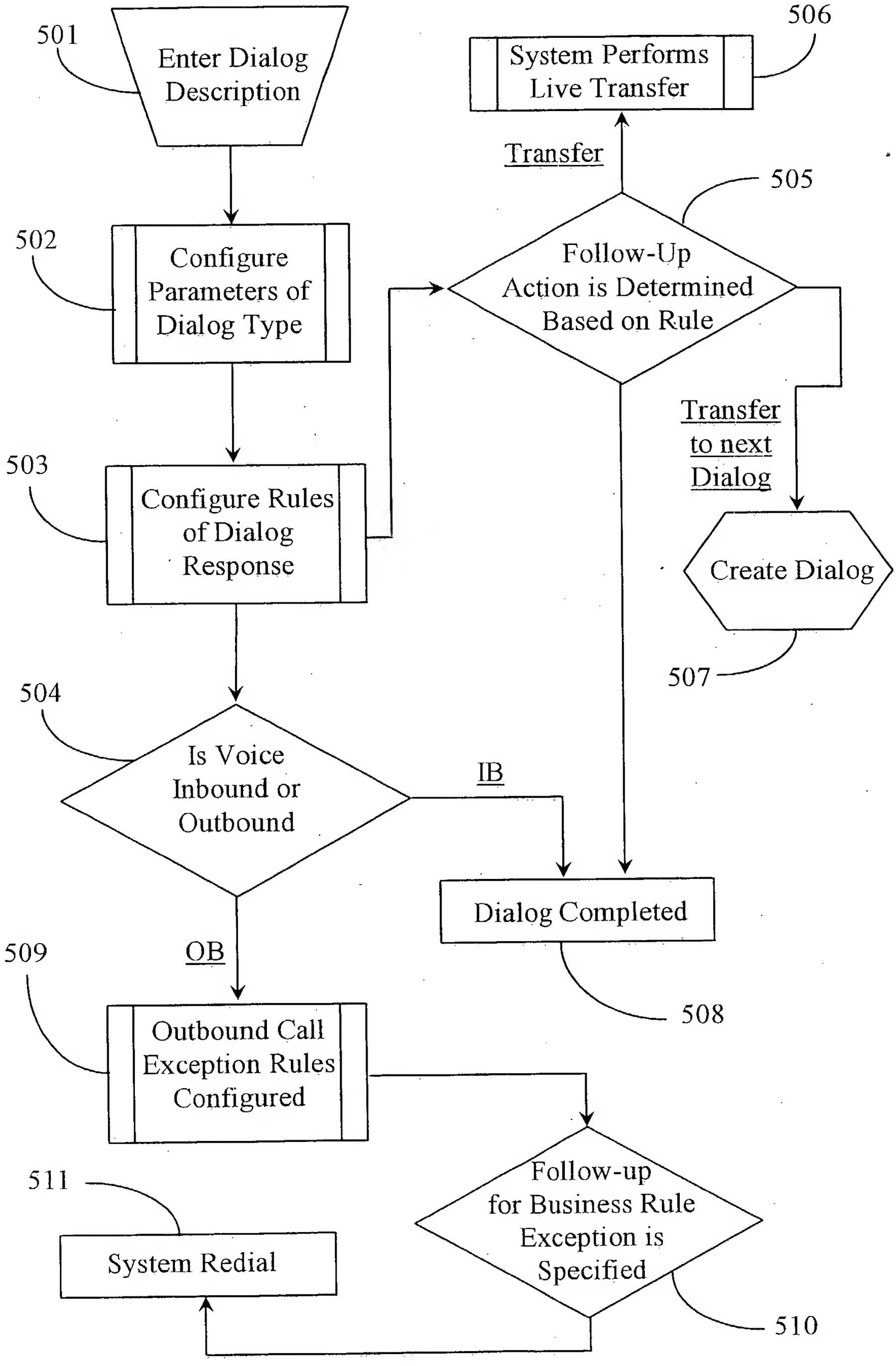

501
Enter Dialog Description
502
Configure Parameters of Dialog Type
503
Configure Rules of Dialog Response
504
Is Voice Inbound or Outbound
IB
OB
505
Follow-Up Action is Determined Based on Rule
506
System Performs Live Transfer
Transfer
Transfer to next Dialog
Create Dialog
507
Dialog Completed
508
509
Outbound Call Exception Rules Configured
510
Follow-up for Business Rule Exception is Specified
511
System Redial

Fig. 5

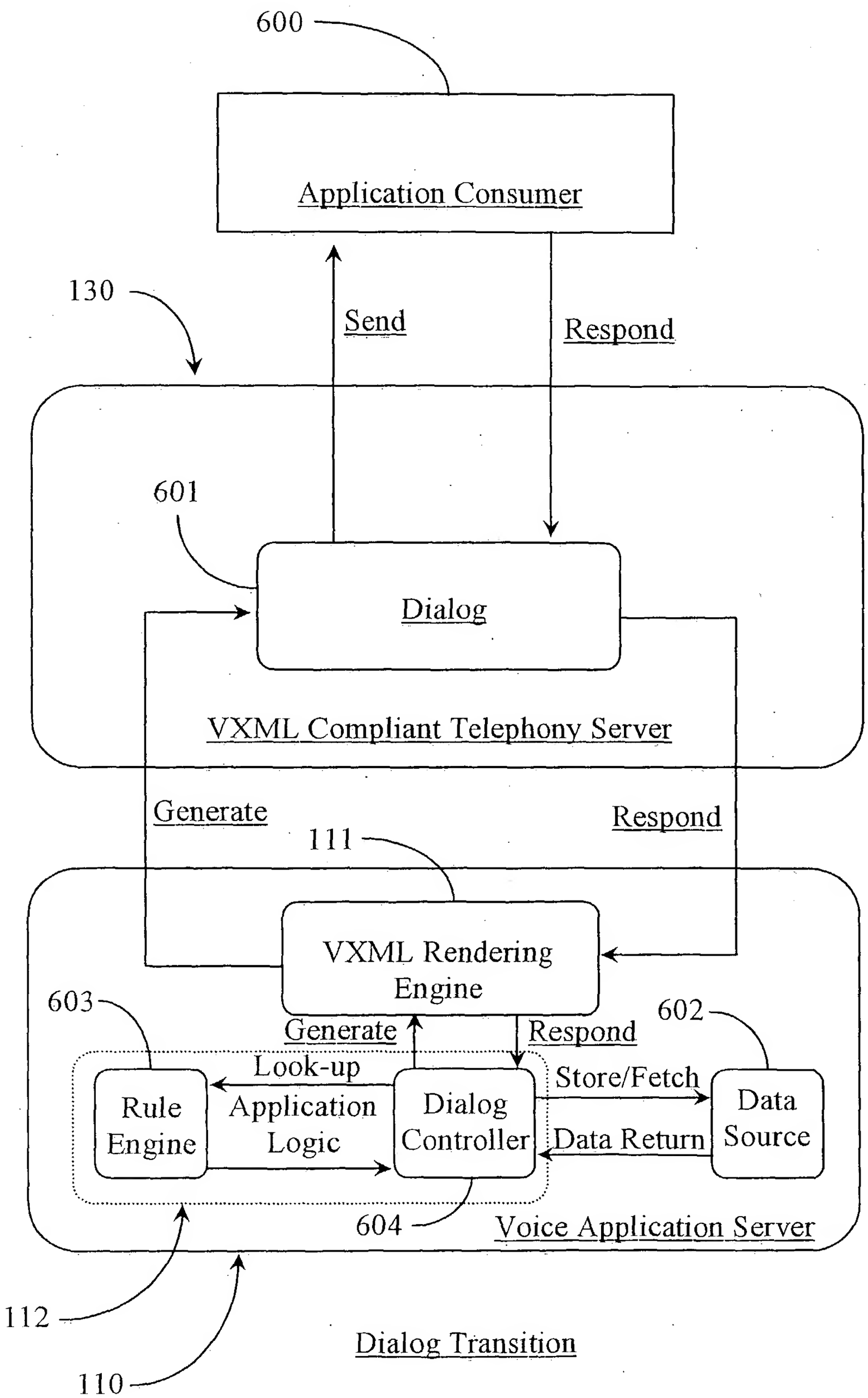

600
Application Consumer
130
Send
Respond
601
Dialog
VXML Compliant Telephony Server
Generate
Respond
111
VXML Rendering Engine
603
602
Generate
Respond
Look-up Application Logic
Store/Fetch
Data Return
Rule Engine
Dialog Controller
Data Source
604
Voice Application Server
112
110
Dialog Transition

Fig. 6

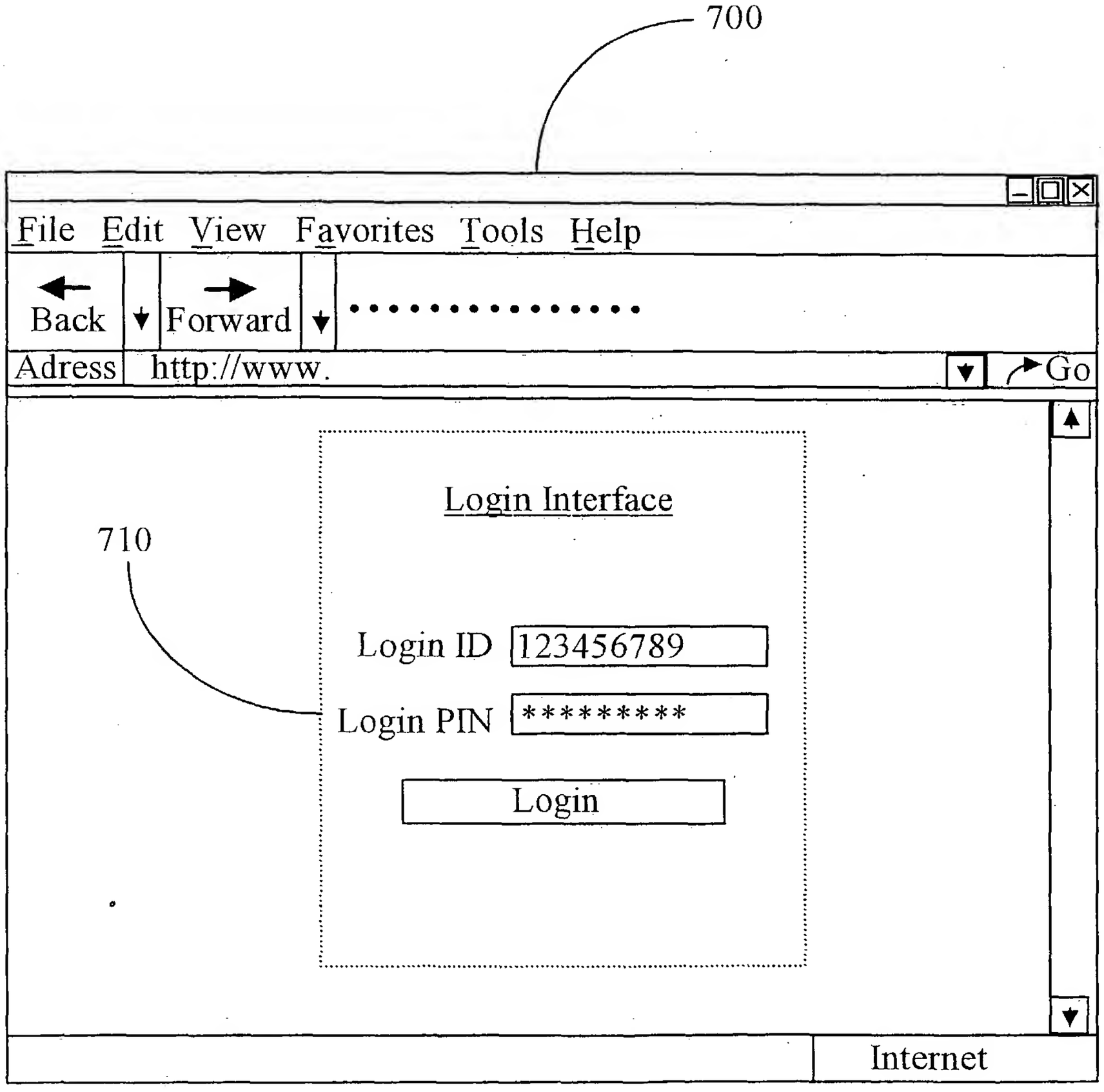

700
File Edit View Favorites Tools Help
Back
Forward
Adress
http://www.
Go
Login Interface
710
Login ID
123456789
Login PIN
****
Login
Internet

Fig. 7

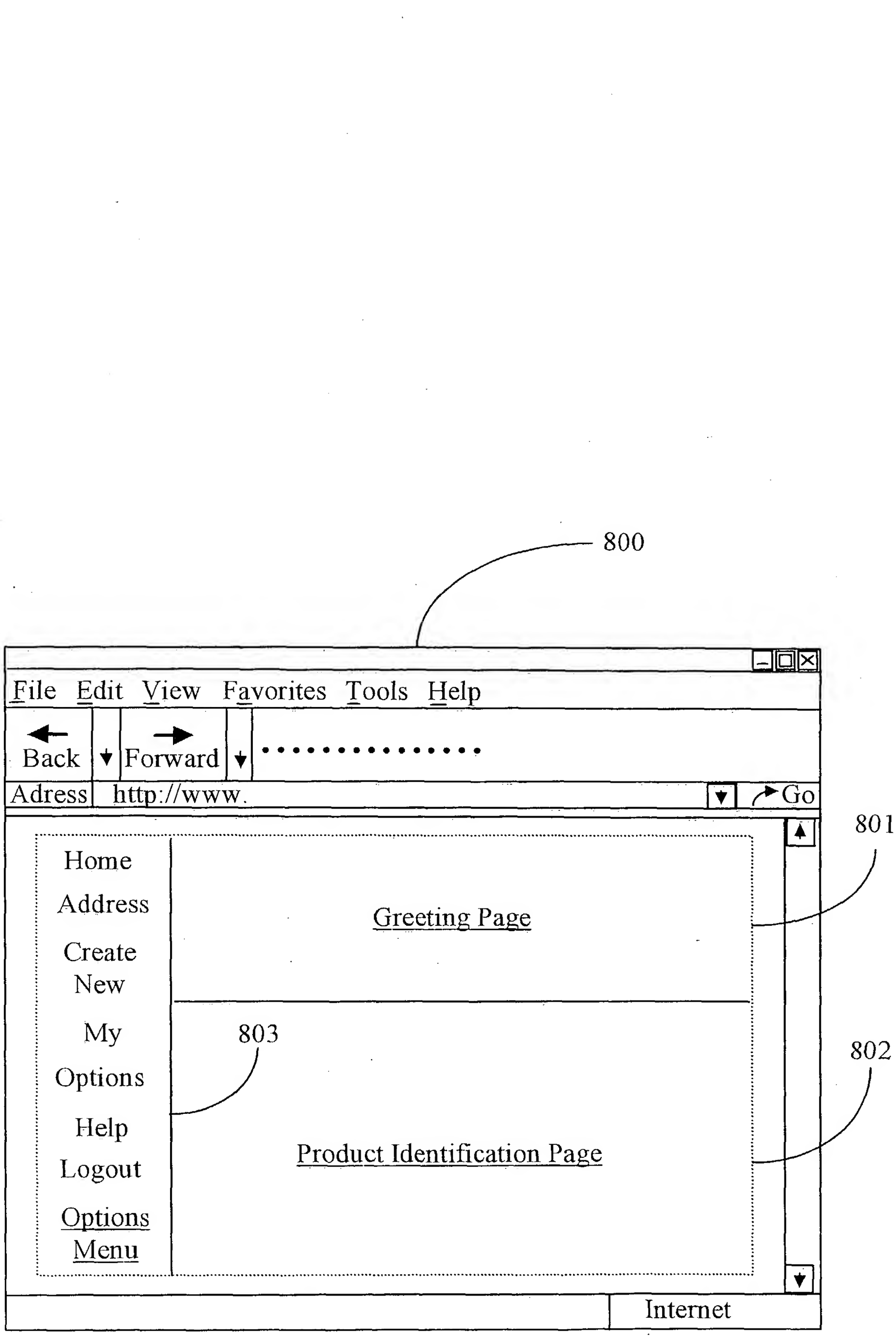

800
File Edit View Favorites Tools Help
Back
Forward
Adress
http://www.
Go
801
Home
Address
Create New
My Options
Help
Logout
Options Menu
Greeting Page
803
Product Identification Page
802
Internet

Fig. 8

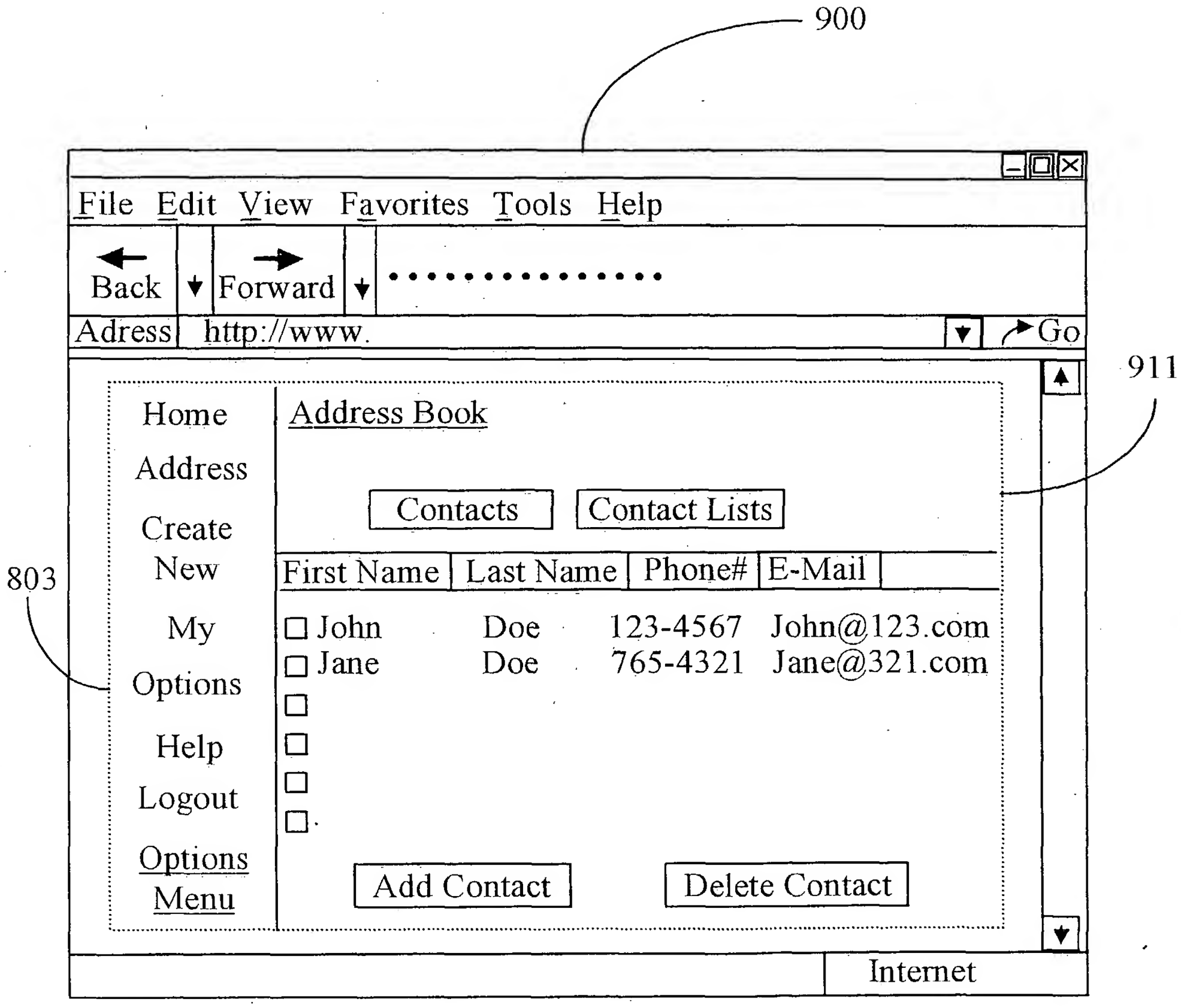

900
File Edit View Favorites Tools Help
Back
Forward
Adress
http://www.
Go
911
803
Home
Address
Create New
My
Options
Help
Logout
Options Menu
Address Book
Contacts
Contact Lists
First Name
Last Name
Phone#
E-Mail
John Doe 123-4567 John@123.com
Jane Doe 765-4321 Jane@321.com
Add Contact
Delete Contact
Internet

Fig. 9

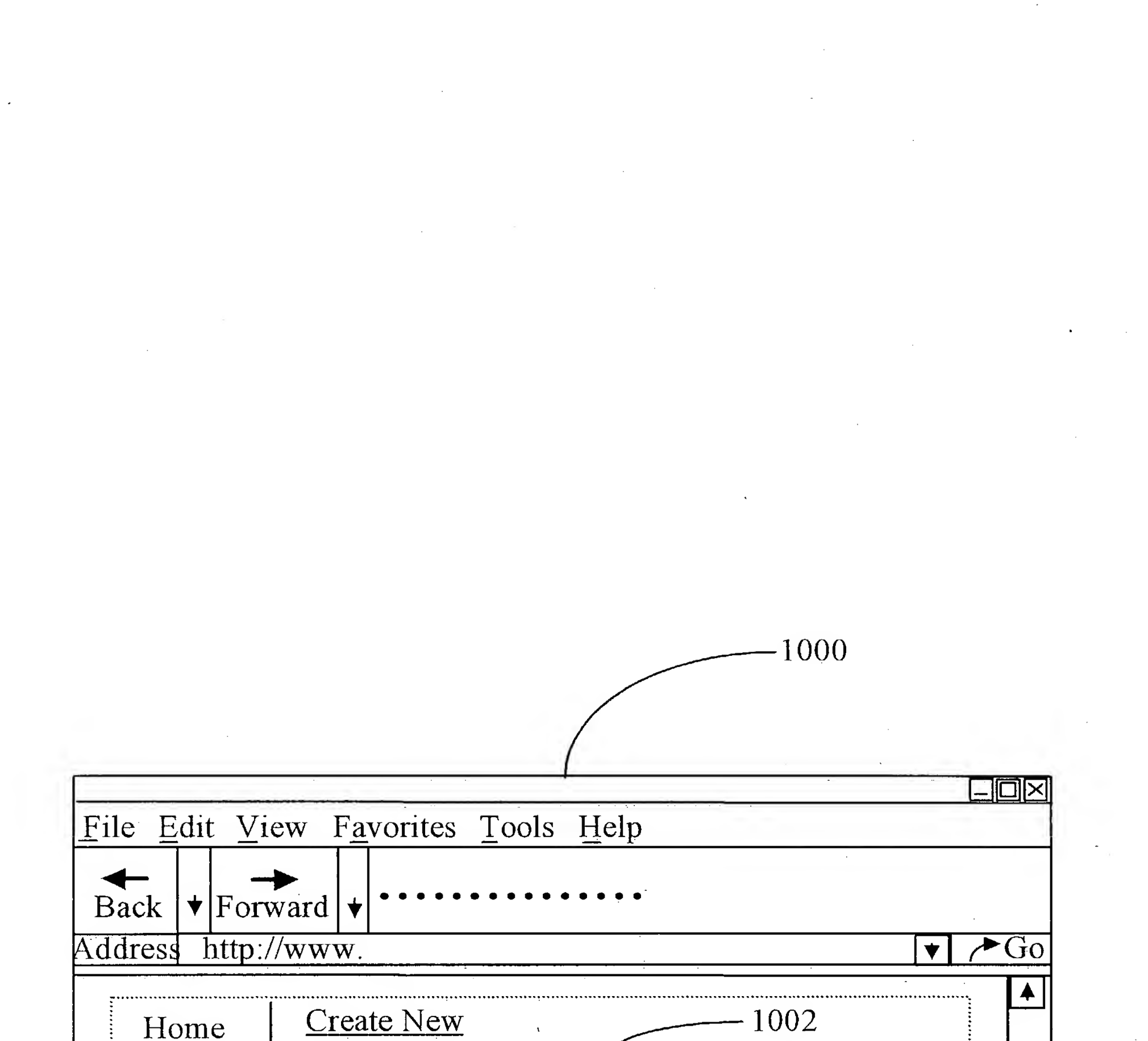

1000
File Edit View Favorites Tools Help
Back
Forward
Address http://www.
Go
Home
Address
Create New
My Options
Help
Logout
Options Menu
803
Create New
1002
Info:
Name
Field Support
1003
Description
1004
Property
Public
Persistent
Shareable
1001
Dialog Flow Setup
1005
Send
New Radio Dialog
To
Select Contact
1006
Create
1007
Internet

Fig. 10

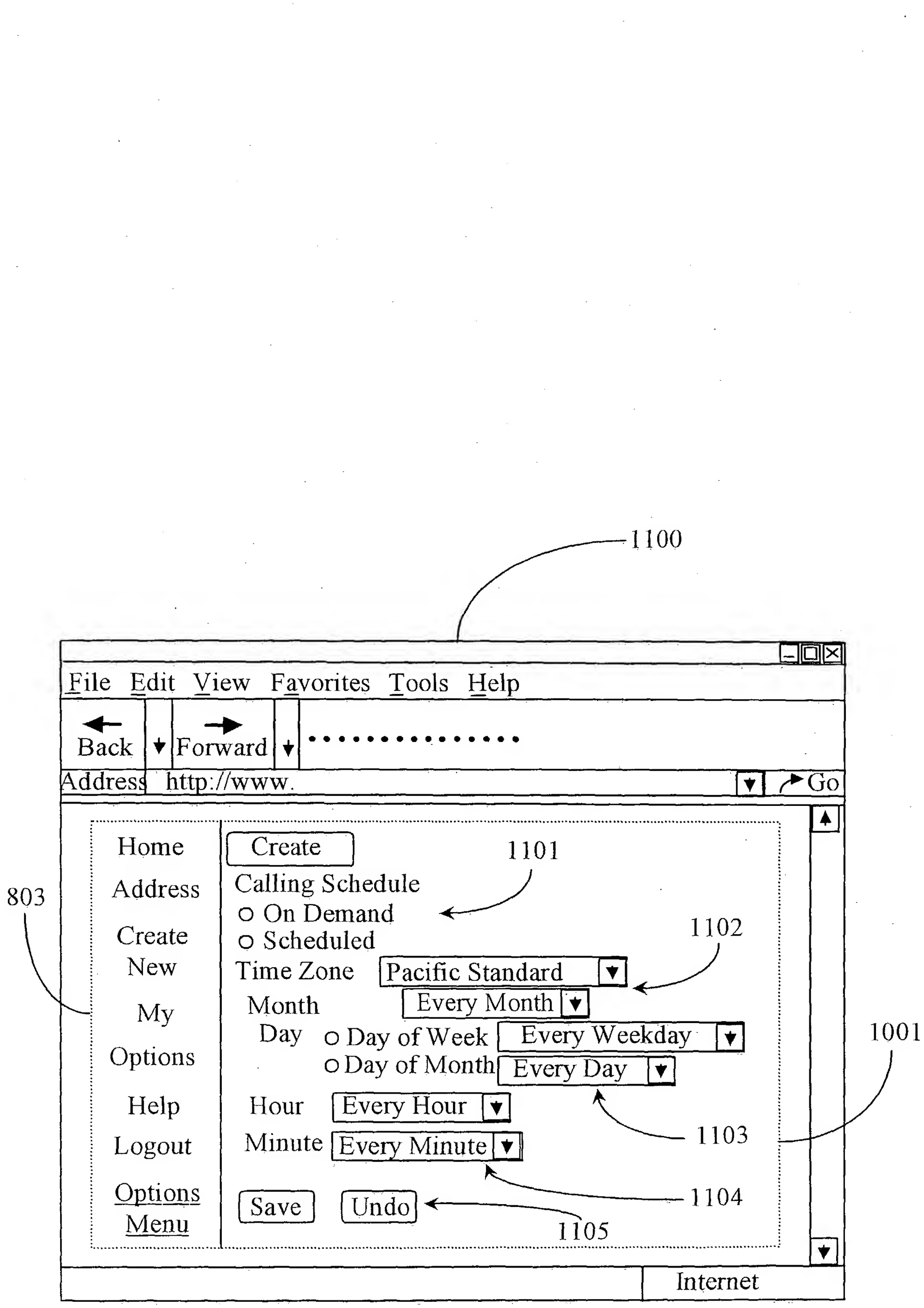
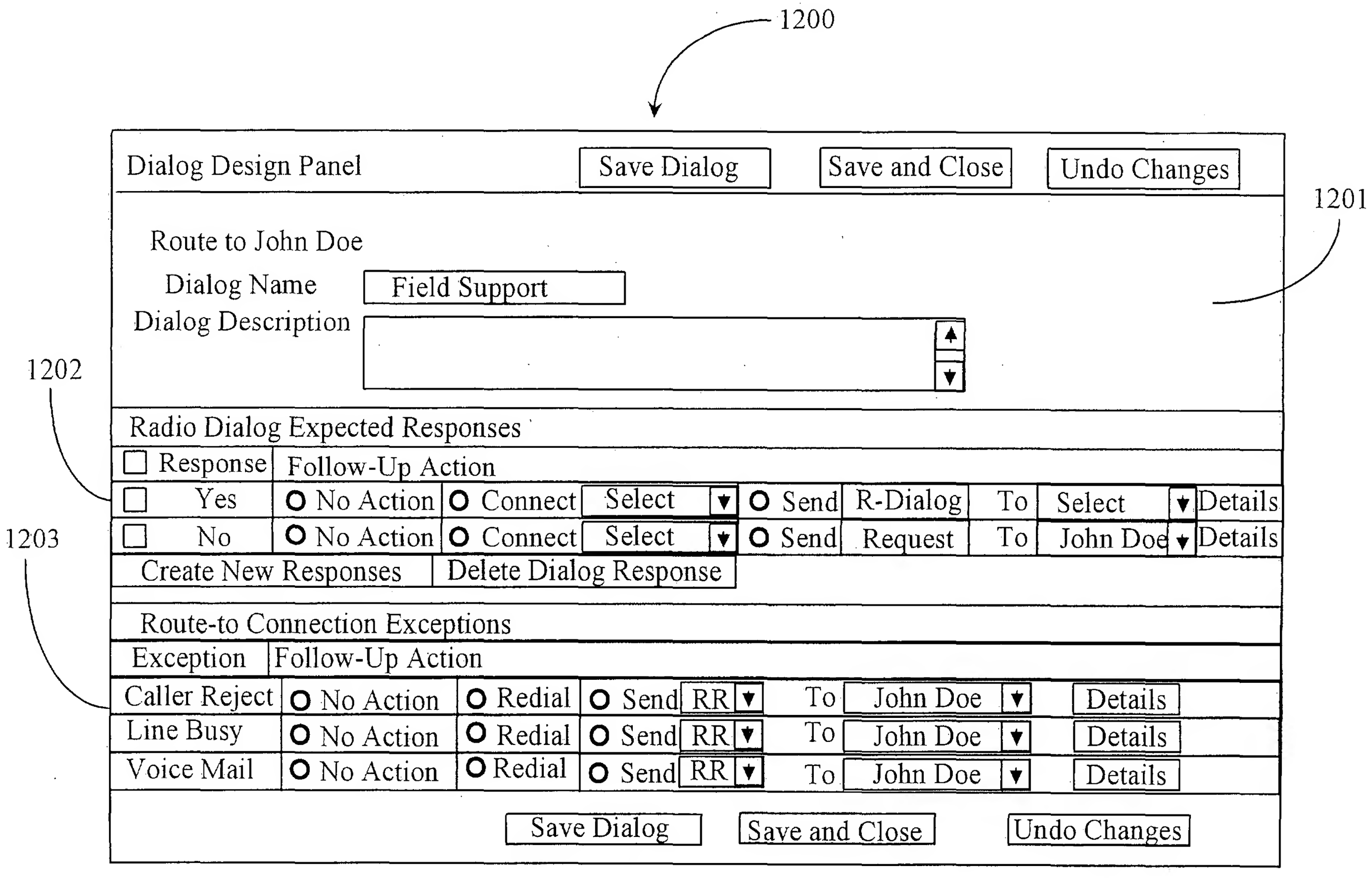

1100
File Edit View Favorites Tools Help
Back
Forward
Address http://www.
Go
Home
Address
Create New
My Options
Help
Logout
Options Menu
Create
Calling Schedule
On Demand
Scheduled
Time Zone
Pacific Standard
Month
Every Month
Day
Day of Week
Every Weekday
Day of Month
Every Day
Hour
Every Hour
Minute
Every Minute
Save
Undo
Internet
803
1101
1102
1001
1103
1104
1105

Fig. 11



Dialog Design Window

Fig. 12

1300

Dialog Design Panel | Save Dialog | Save and Close | Undo Changes

1301

Route from John Doe
Route to Jane Doe

Dialog Name: Field Support

Dialog Description: Machine number <resource: Machine_code/> is broken. Are you available to fix it?

1302

Radio Dialog Expected Responses

Response	Follow-Up Action								
☐ Yes	○ No Action	○ Connect	Select ▼	○ Send	R-Dialog	To	Select ▼	Details
☐ No	○ No Action	○ Connect	Select ▼	○ Send	Request	To	John Doe ▼	Details

Create New Responses | Delete Dialog Response

1303

Route-to Connection Exceptions

Exception	Follow-Up Action						
Caller Reject	○ No Action	○ Redial	○ Send	RR ▼	To	John Doe ▼	Details
Line Busy	○ No Action	○ Redial	○ Send	RR ▼	To	John Doe ▼	Details
Voice Mail	○ No Action	○ Redial	○ Send	RR ▼	To	John Doe ▼	Details

Save Dialog | Save and Close | Undo Changes

Dialog Design Window

Fig. 13

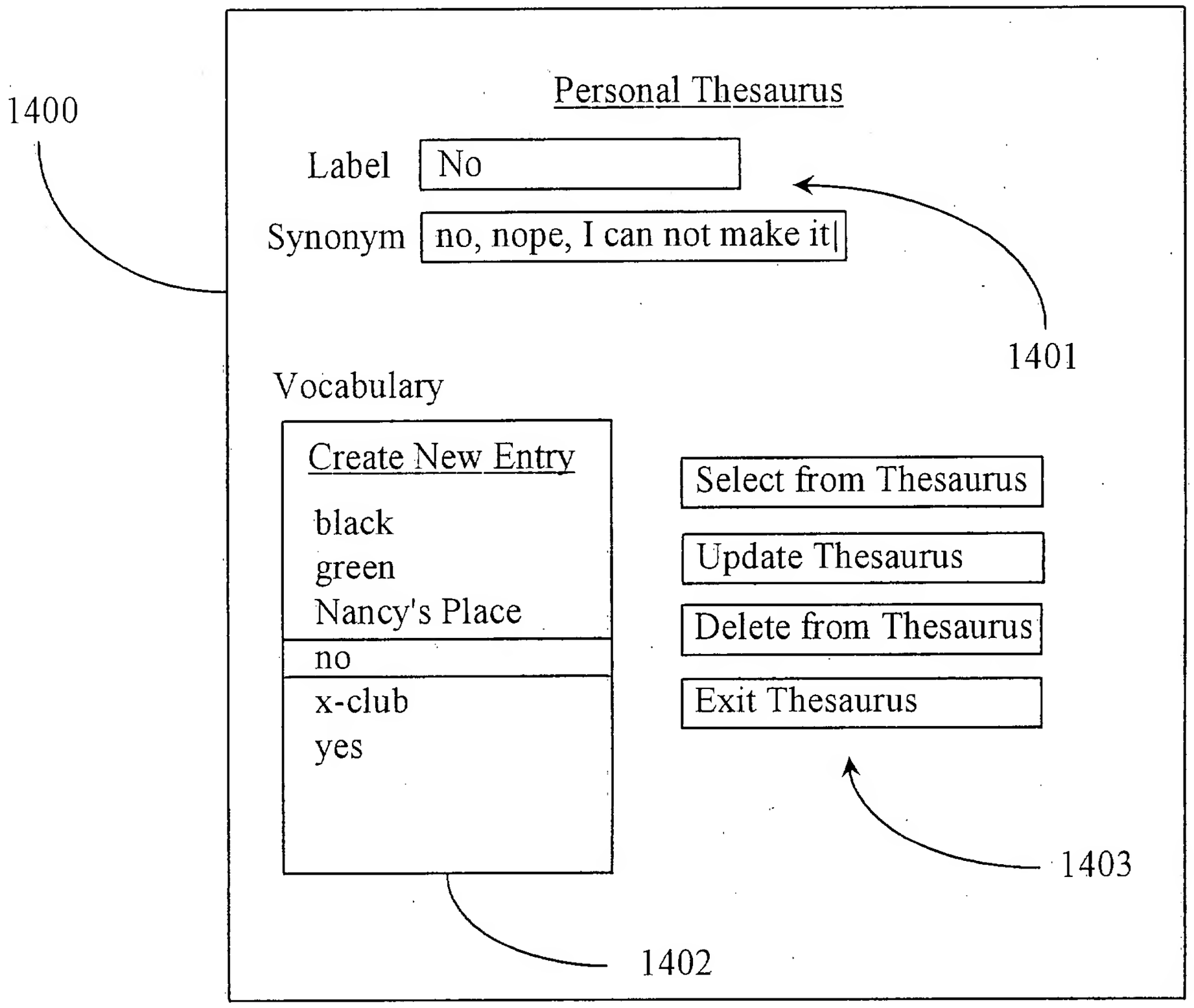

1400
Personal Thesaurus
Label
No
Synonym
no, nope, I can not make it
1401
Vocabulary
Create New Entry
black
green
Nancy's Place
no
x-club
yes
Select from Thesaurus
Update Thesaurus
Delete from Thesaurus
Exit Thesaurus
1403
1402

Fig. 14

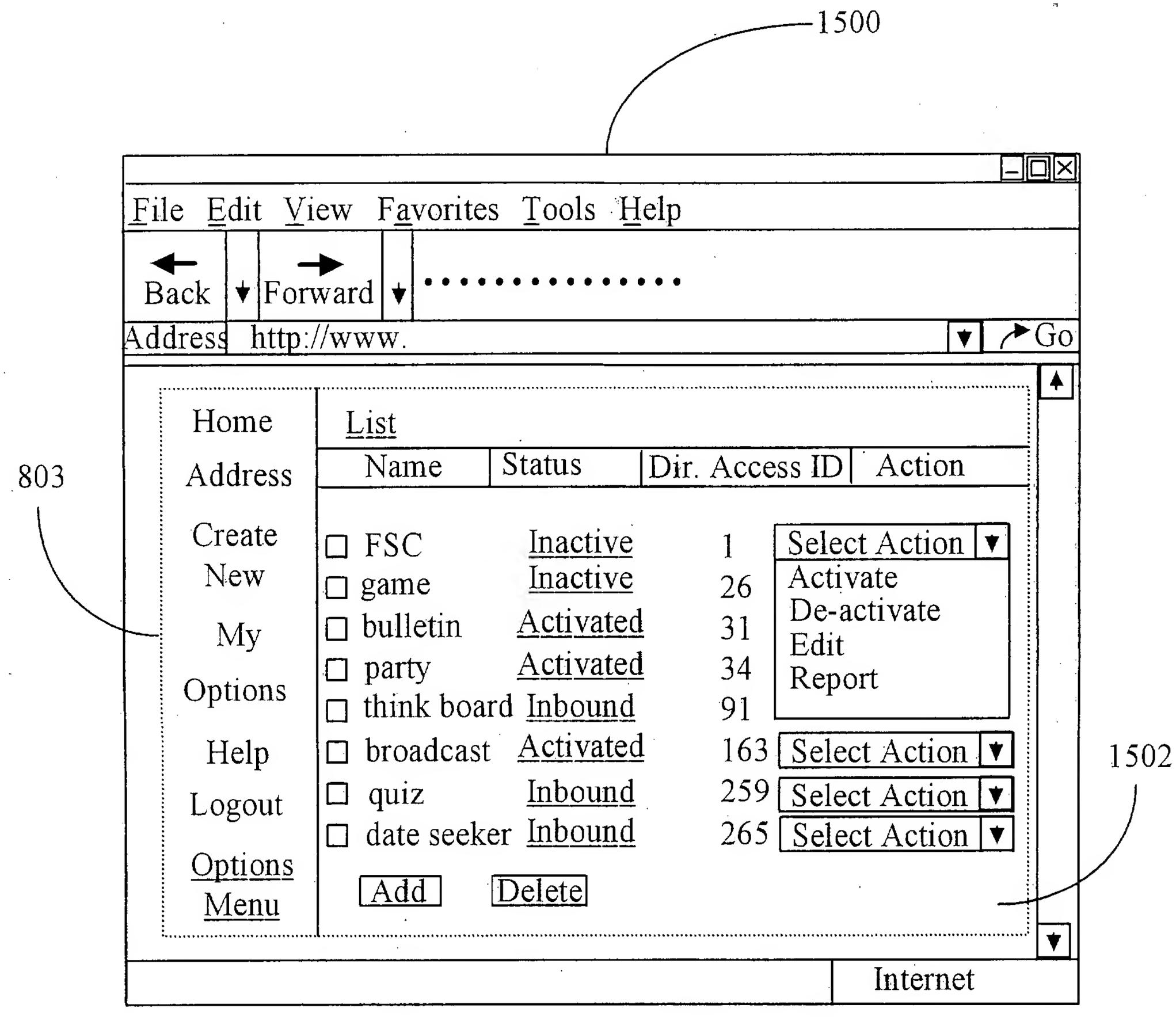

1500
File Edit View Favorites Tools Help
Back
Forward
Address http://www.
Go
Home
List
803
Address
Name
Status
Dir. Access ID
Action
Create New
My
Options
Help
Logout
Options Menu
FSC Inactive 1
game Inactive 26
bulletin Activated 31
party Activated 34
think board Inbound 91
broadcast Activated 163
quiz Inbound 259
date seeker Inbound 265
Select Action
Activate
De-activate
Edit
Report
Add
Delete
1502
Internet

Fig. 15

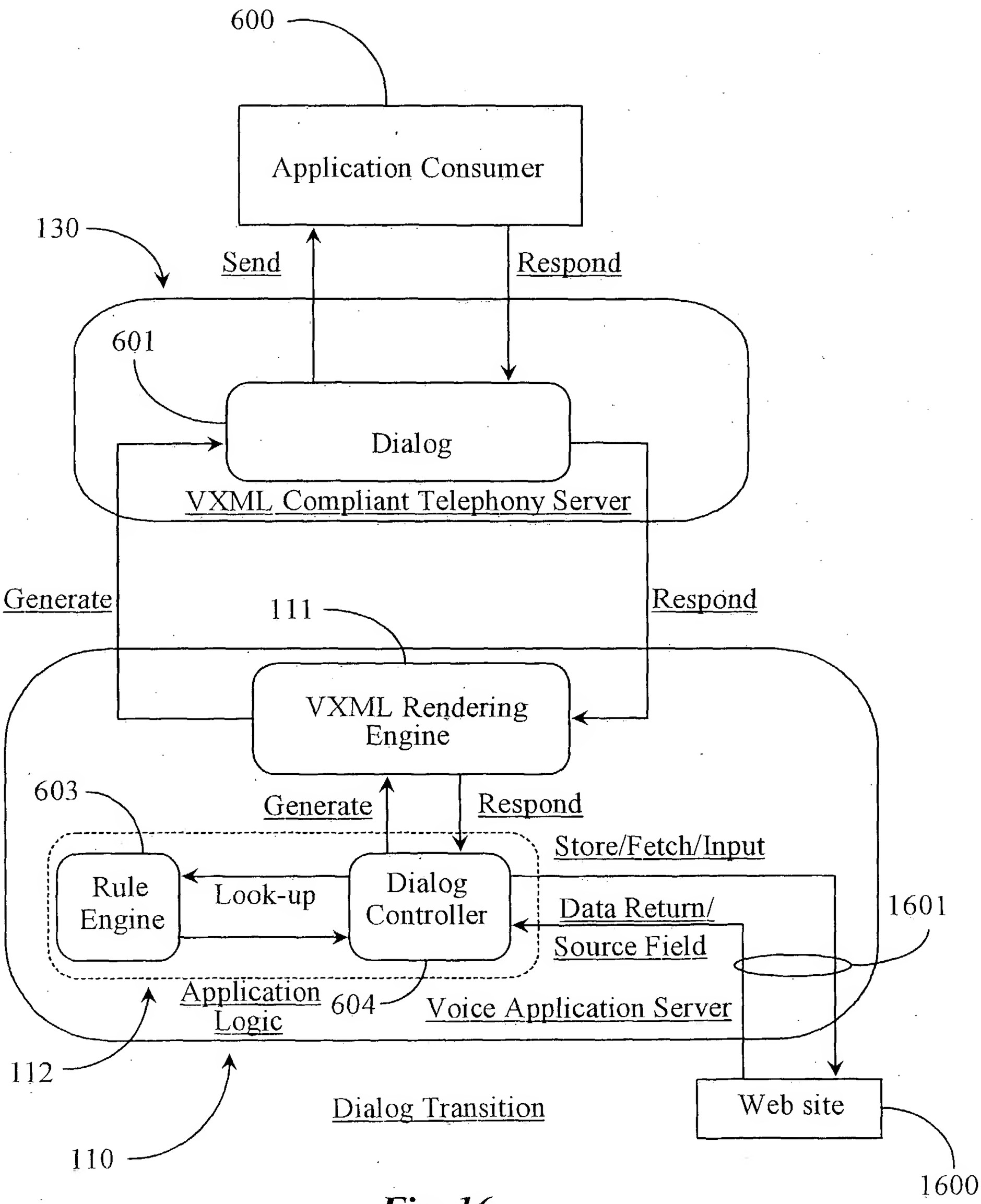

600
Application Consumer
130
Send
Respond
601
Dialog
VXML Compliant Telephony Server
Generate
Respond
111
VXML Rendering Engine
603
Generate
Respond
Store/Fetch/Input
Rule Engine
Look-up
Dialog Controller
Data Return/
Source Field
1601
Application Logic
604
Voice Application Server
112
Dialog Transition
Web site
110
1600

Fig. 16

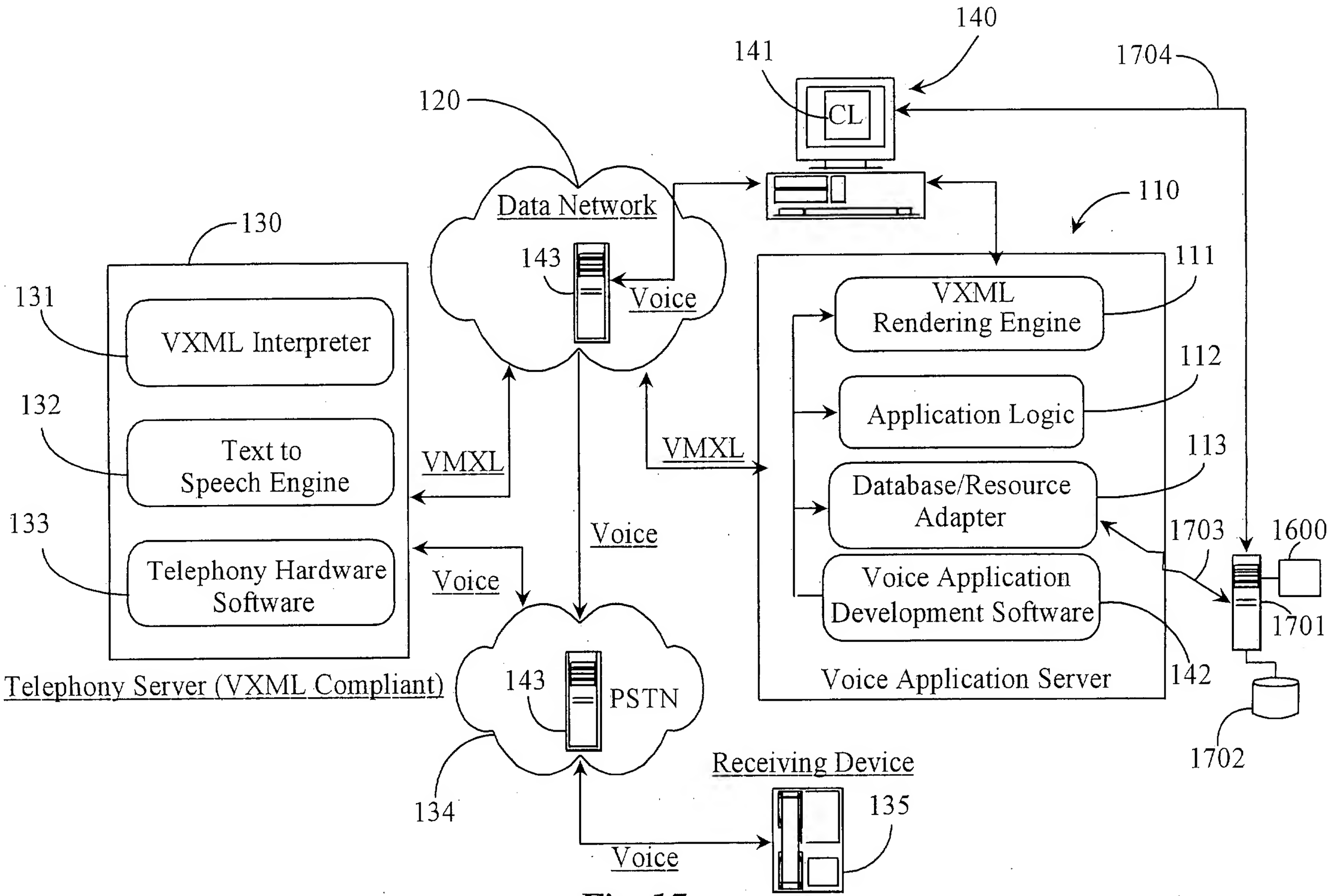

140
141
CL
1704
120
Data Network
110
130
143
111
131
VXML
Rendering Engine
VXML Interpreter
112
132
Application Logic
Text to
Speech Engine
VMXL
VMXL
113
Database/Resource
Adapter
133
1703
1600
Voice
Telephony Hardware
Software
Voice
Voice Application
Development Software
1701
Voice Application Server
142
143
PSTN
Telephony Server (VXML Compliant)
1702
Receiving Device
134
135
Voice

Fig. 17

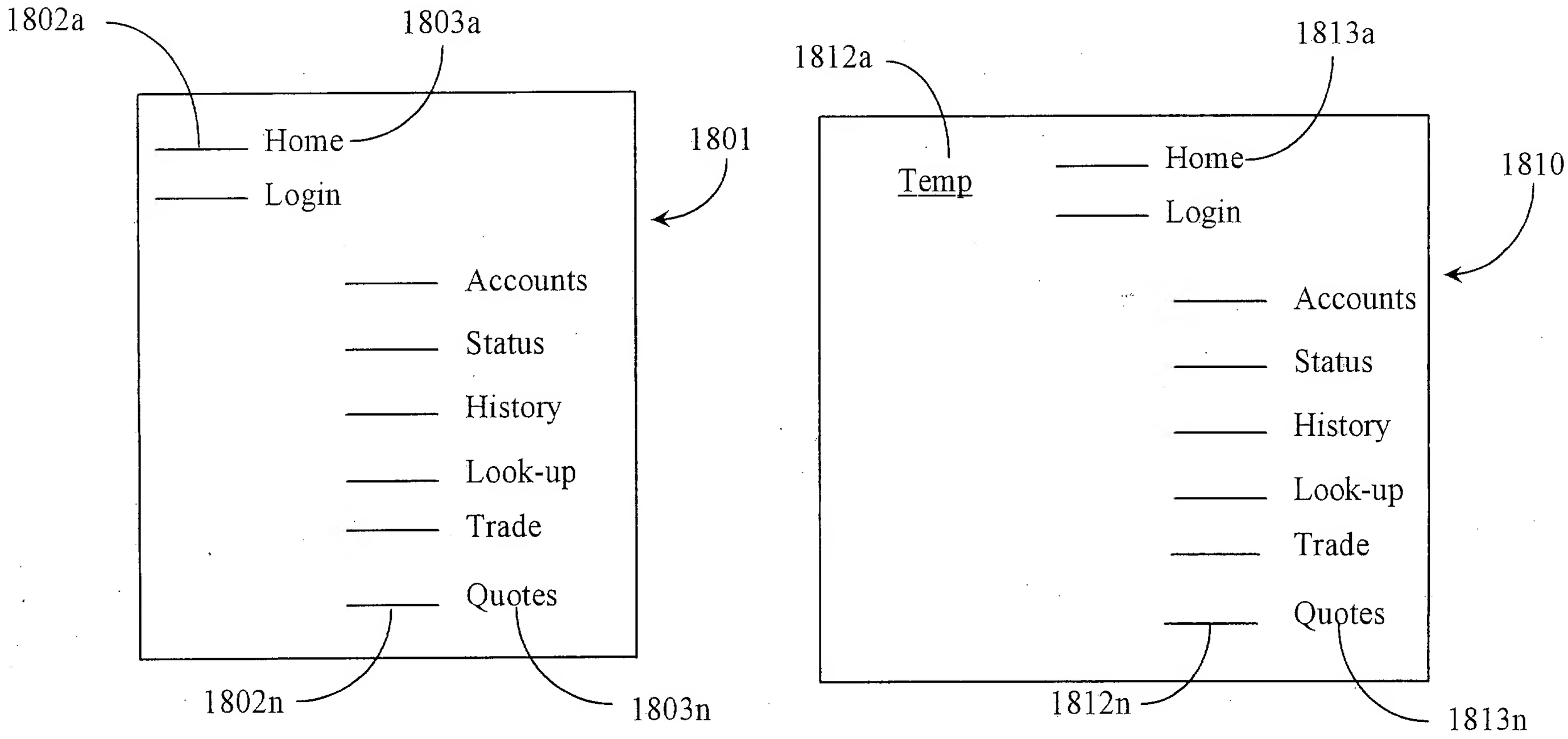

1802a
1803a
1801
Home
Login
Accounts
Status
History
Look-up
Trade
Quotes
1802n
1803n
1812a
1813a
1810
Temp
Home
Login
Accounts
Status
History
Look-up
Trade
Quotes
1812n
1813n

Fig. 18

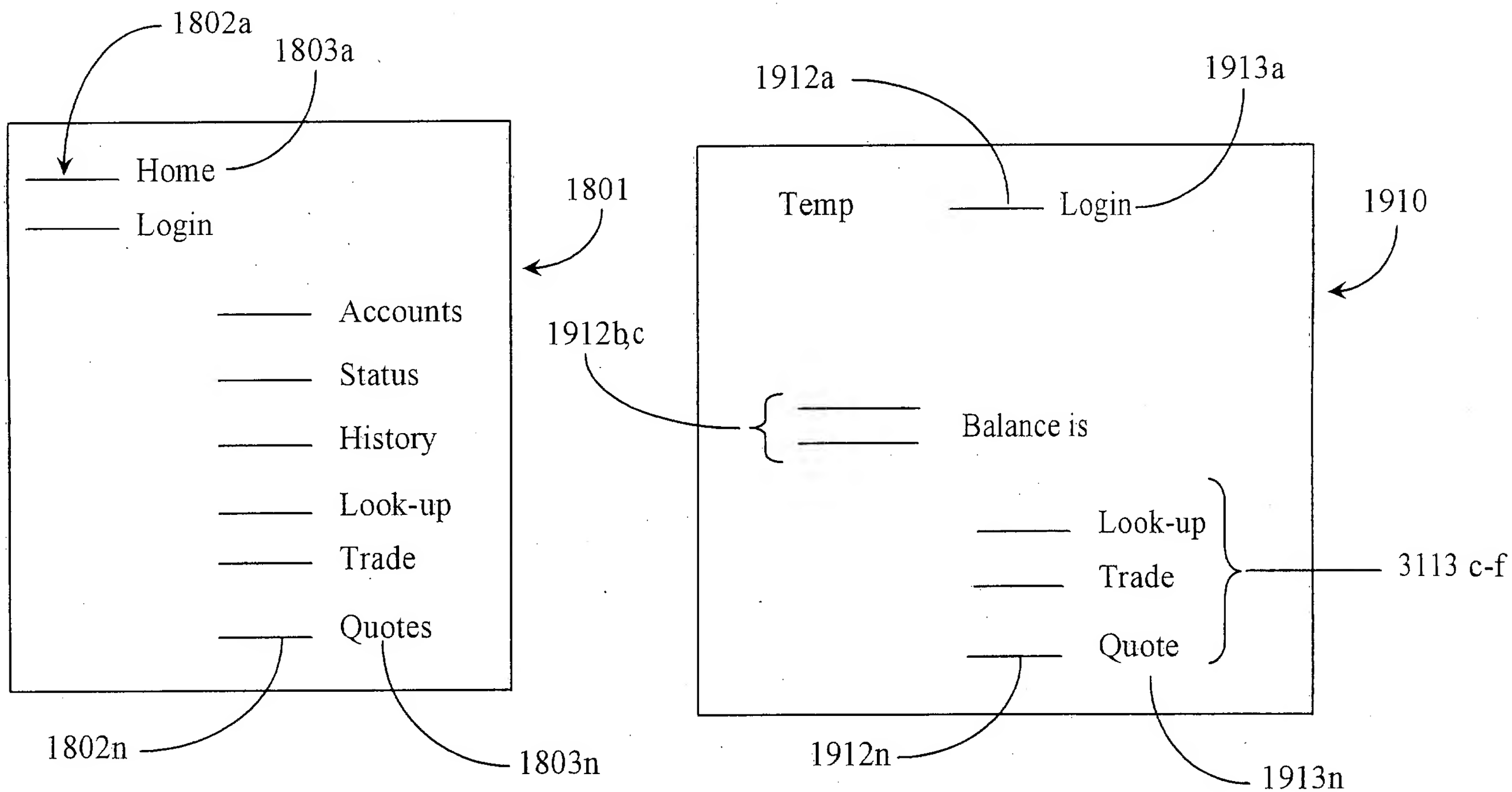

1802a
1803a
Home
Login
1801
Accounts
Status
History
Look-up
Trade
Quotes
1802n
1803n
1912b,c
1912a
1913a
Temp
Login
1910
Balance is
Look-up
Trade
Quote
3113 c-f
1912n
1913n

Fig. 19

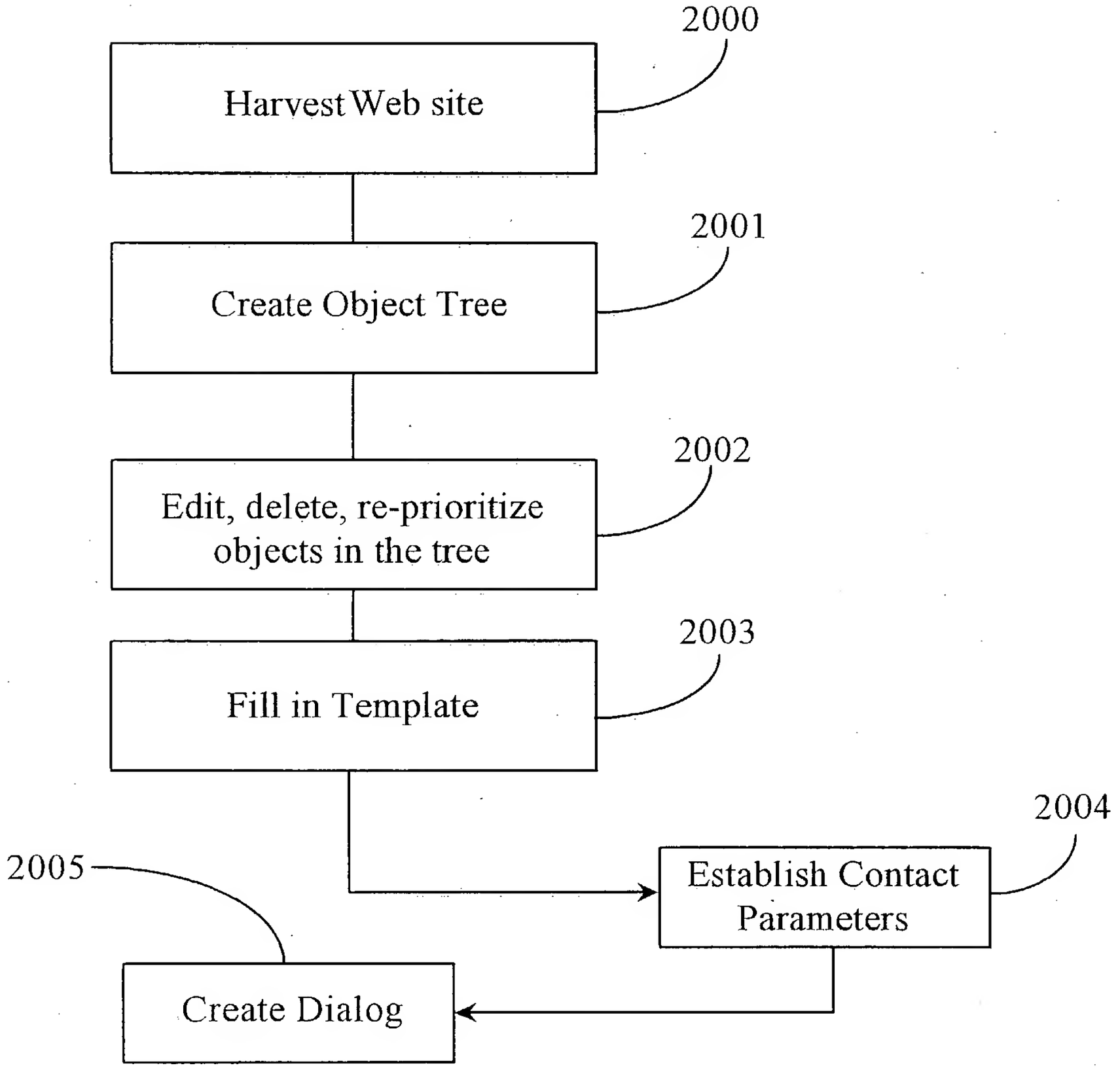

2000
Harvest Web site
2001
Create Object Tree
2002
Edit, delete, re-prioritize objects in the tree
2003
Fill in Template
2004
Establish Contact Parameters
2005
Create Dialog

Fig. 20

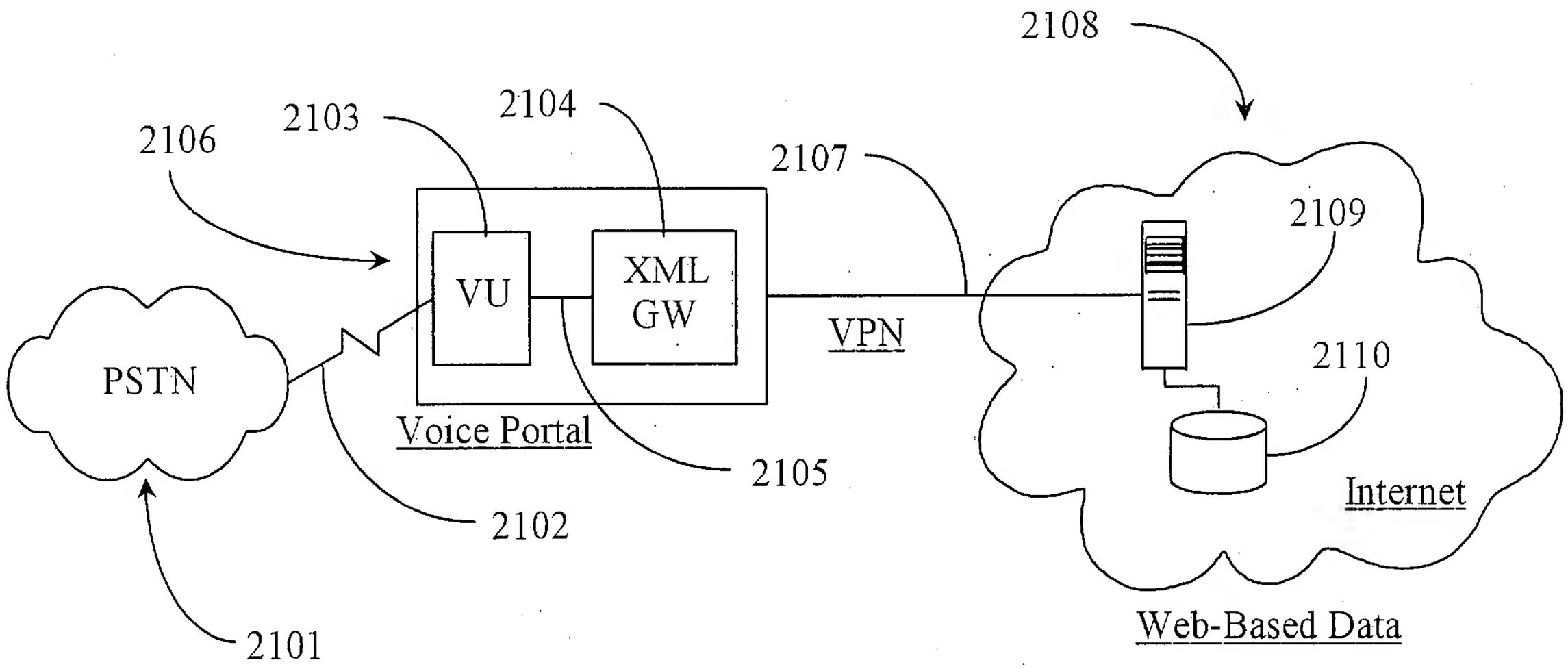

2108
2106
2103
2104
2107
2109
VU
XML GW
VPN
PSTN
2110
Voice Portal
2105
2102
Internet
2101
Web-Based Data

Fig. 21

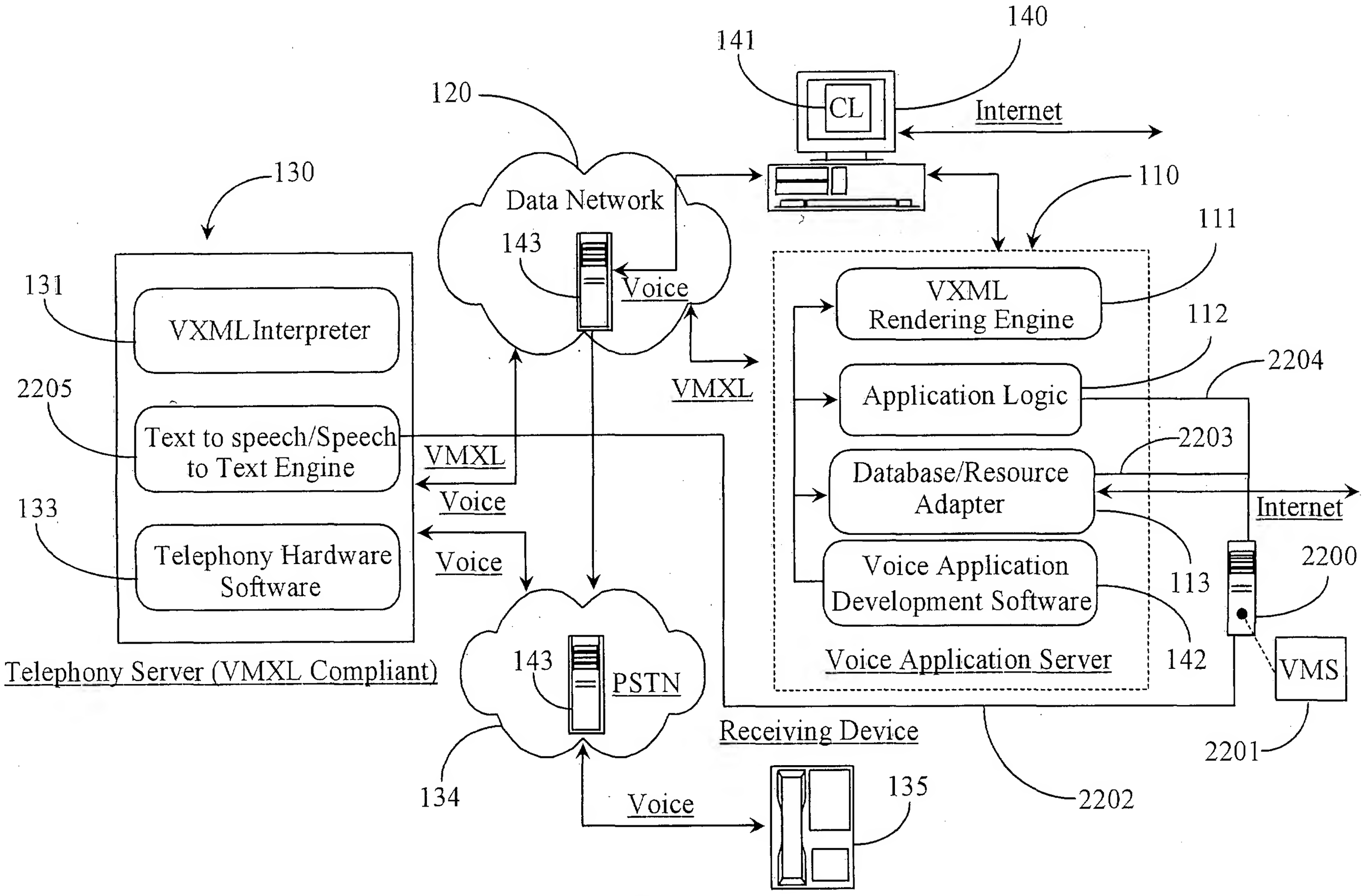

140
141
CL
Internet
120
Data Network
143
Voice
130
110
111
131
VXML Interpreter
VXML
Rendering Engine
112
2204
2205
Application Logic
VMXL
2203
Text to speech/Speech
to Text Engine
VMXL
Database/Resource
Adapter
Internet
Voice
133
Telephony Hardware
Software
Voice
Voice Application
Development Software
113
2200
Voice Application Server
142
VMS
Telephony Server (VMXL Compliant)
143
PSTN
Receiving Device
2201
134
Voice
135
2202

Fig. 22

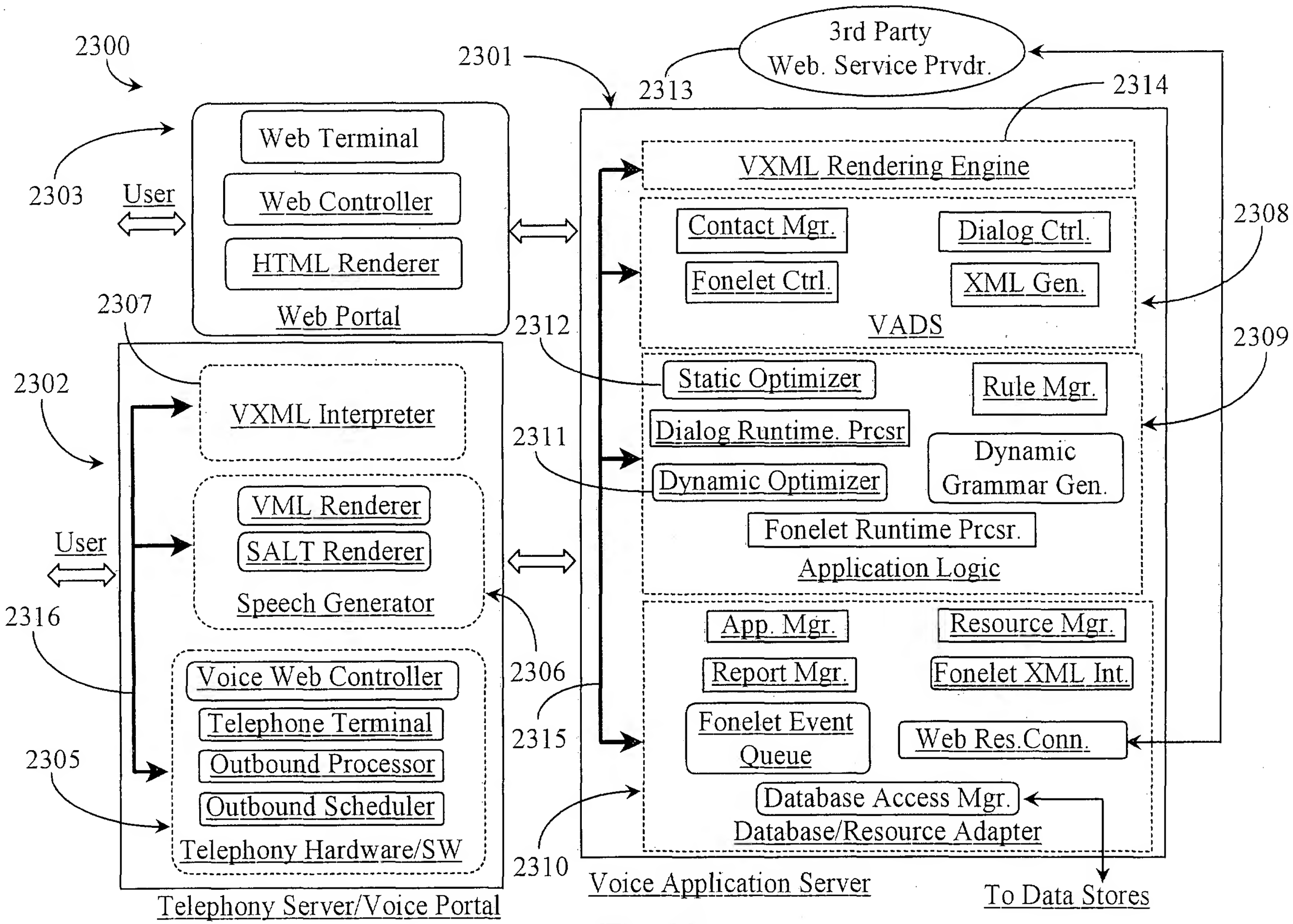

2300
2301
3rd Party
Web. Service Prvdr.
2313
2314
Web Terminal
Web Controller
HTML Renderer
Web Portal
2303
User
VXML Rendering Engine
Contact Mgr.
Dialog Ctrl.
Fonelet Ctrl.
XML Gen.
VADS
2308
2307
2312
2309
2302
VXML Interpreter
Static Optimizer
Rule Mgr.
2311
Dialog Runtime. Prcsr
Dynamic Optimizer
Dynamic Grammar Gen.
Fonelet Runtime Prcsr.
Application Logic
VML Renderer
SALT Renderer
User
Speech Generator
2316
App. Mgr.
Resource Mgr.
Report Mgr.
Fonelet XML Int.
2306
Voice Web Controller
Telephone Terminal
Fonelet Event Queue
Web Res.Conn.
2315
2305
Outbound Processor
Outbound Scheduler
Database Access Mgr.
Database/Resource Adapter
Telephony Hardware/SW
2310
Voice Application Server
To Data Stores
Telephony Server/Voice Portal

Fig. 23

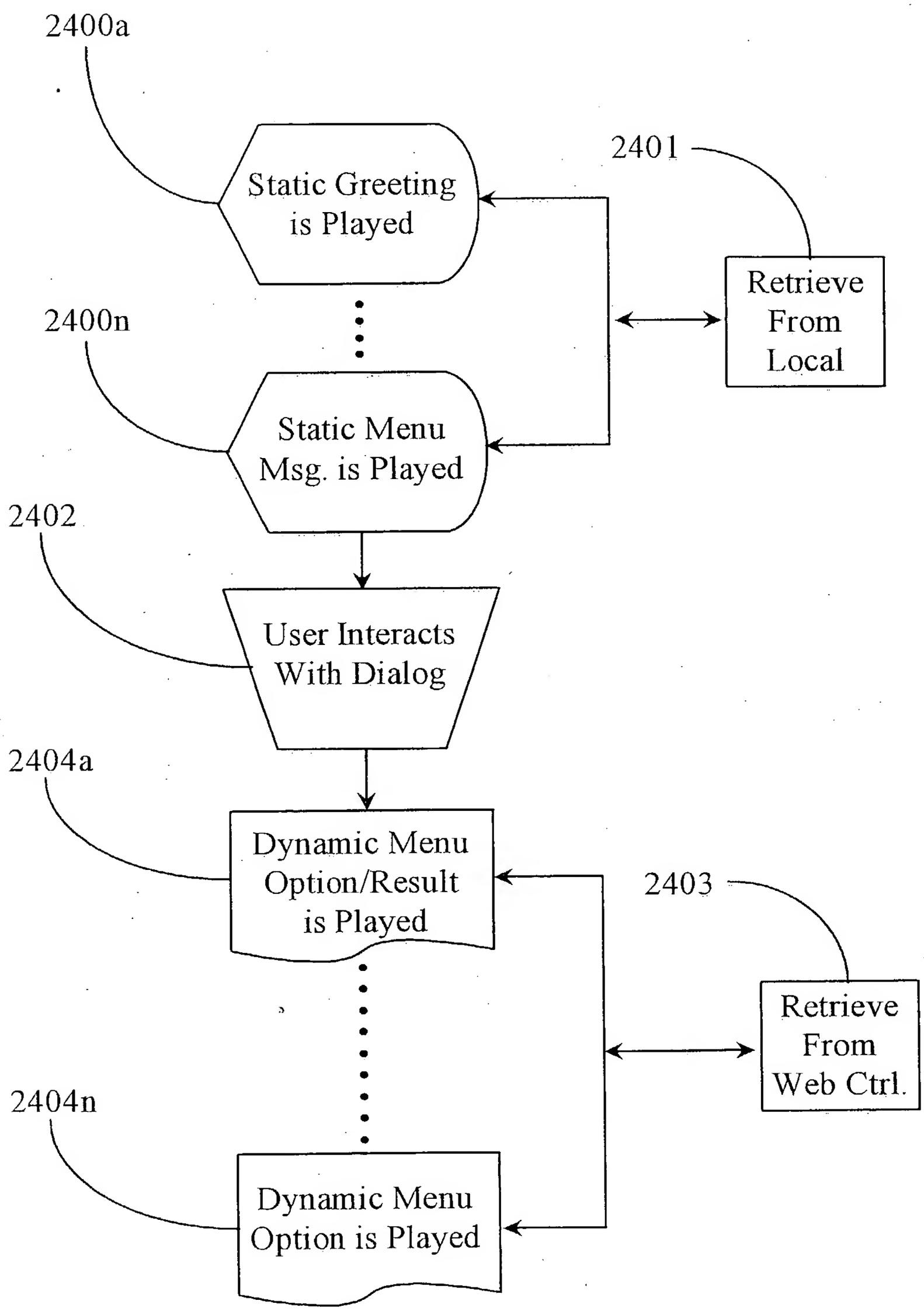

2400a
Static Greeting is Played
2401
Retrieve From Local
2400n
Static Menu Msg. is Played
2402
User Interacts With Dialog
2404a
Dynamic Menu Option/Result is Played
2403
Retrieve From Web Ctrl.
2404n
Dynamic Menu Option is Played

Fig. 24

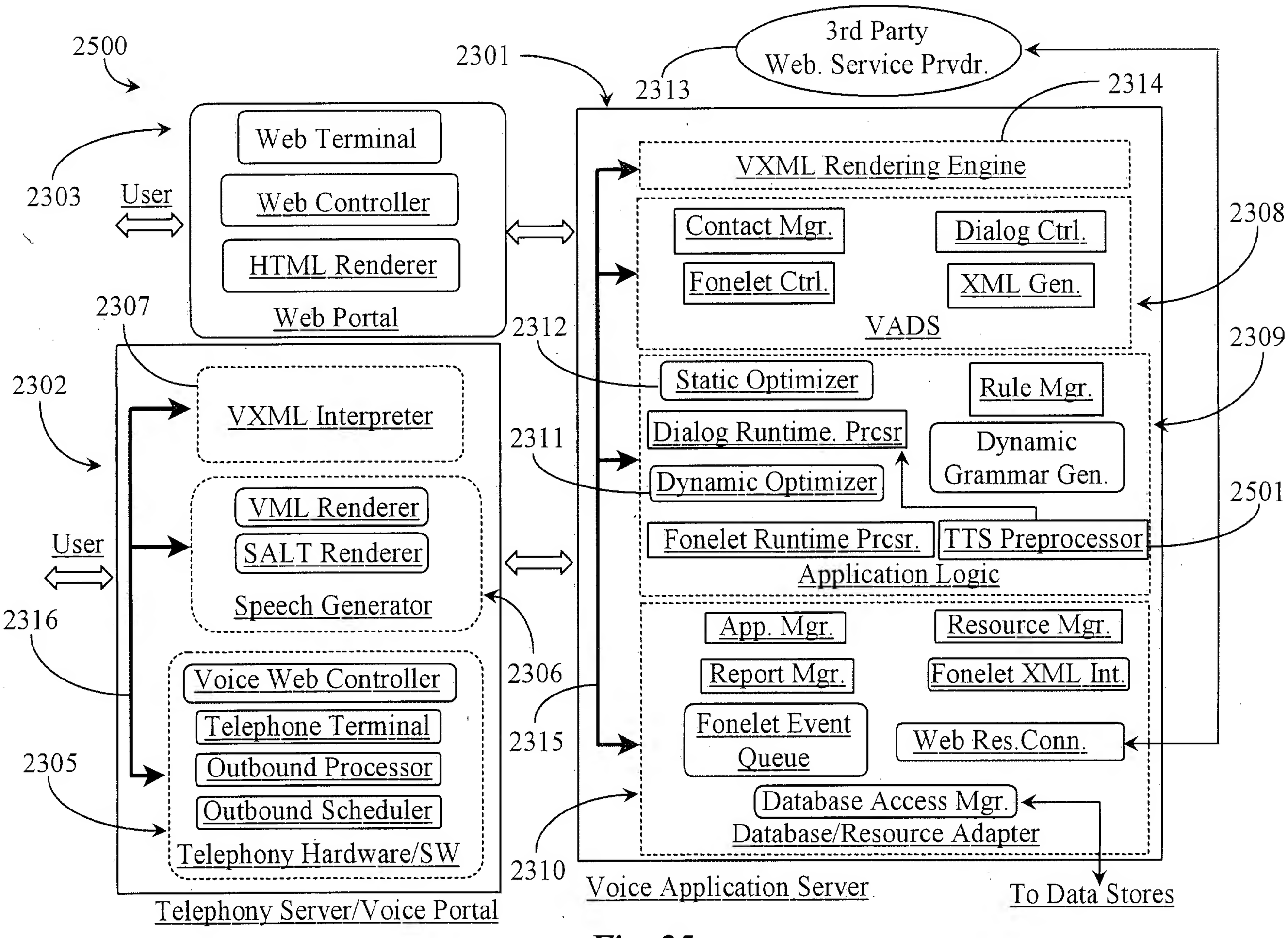
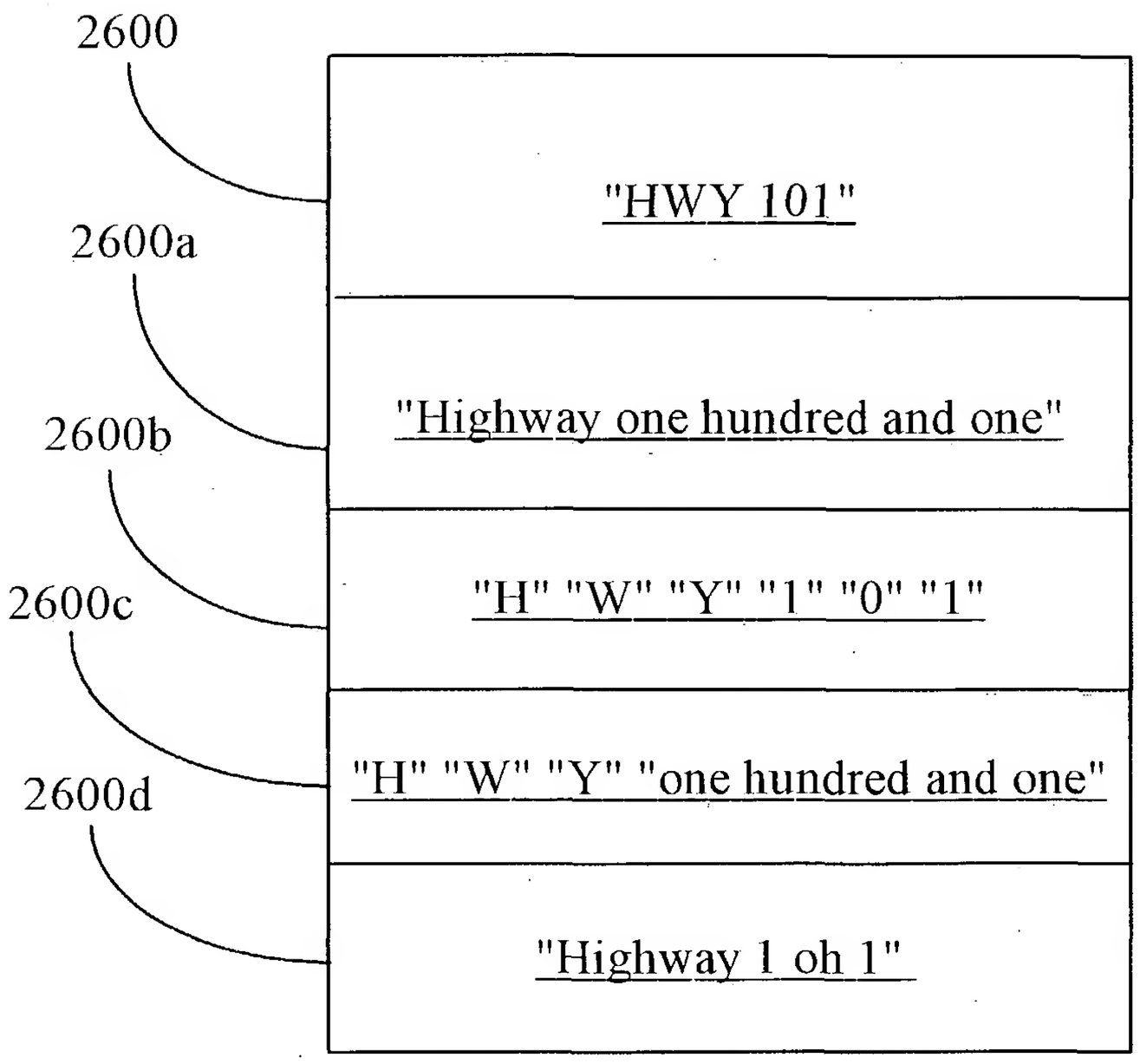

2500
2301
3rd Party
Web. Service Prvdr.
2313
2314
Web Terminal
2303
User
Web Controller
HTML Renderer
Web Portal
VXML Rendering Engine
Contact Mgr.
Dialog Ctrl.
Fonelet Ctrl.
XML Gen.
VADS
2308
2307
2312
2309
2302
VXML Interpreter
Static Optimizer
Rule Mgr.
2311
Dialog Runtime. Prcsr
Dynamic
Grammar Gen.
Dynamic Optimizer
2501
VML Renderer
User
SALT Renderer
Fonelet Runtime Prcsr.
TTS Preprocessor
Application Logic
Speech Generator
2316
App. Mgr.
Resource Mgr.
2306
Report Mgr.
Fonelet XML Int.
Voice Web Controller
Telephone Terminal
Fonelet Event
Queue
2315
Web Res.Conn.
2305
Outbound Processor
Outbound Scheduler
Database Access Mgr.
Database/Resource Adapter
Telephony Hardware/SW
2310
Voice Application Server
To Data Stores
Telephony Server/Voice Portal

Fig. 25



Varient Speech Renderings

Fig. 26

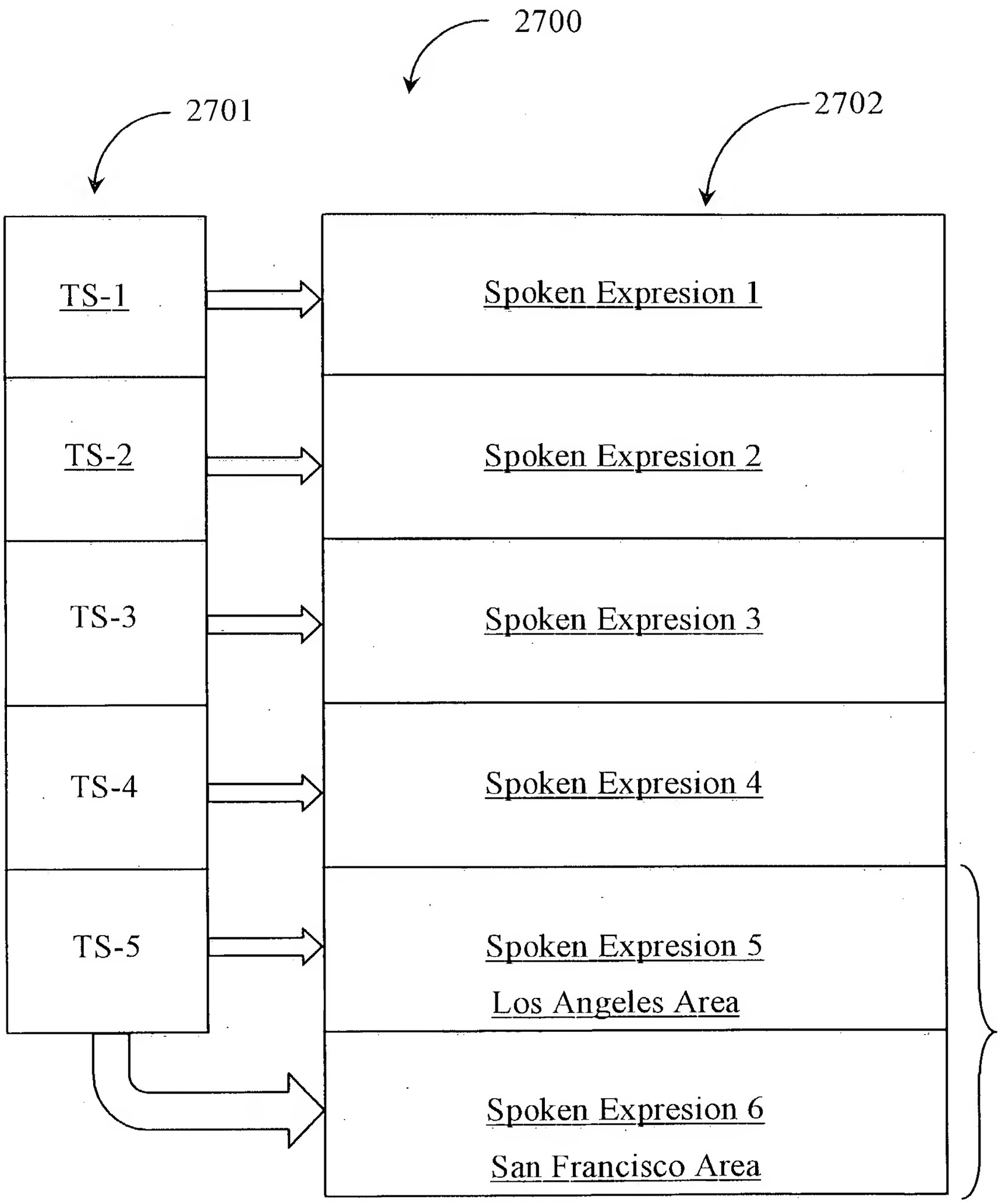

2700
2701
2702
TS-1
Spoken Expresion 1
TS-2
Spoken Expresion 2
TS-3
Spoken Expresion 3
TS-4
Spoken Expresion 4
TS-5
Spoken Expresion 5
Los Angeles Area
Spoken Expresion 6
San Francisco Area

Fig. 27

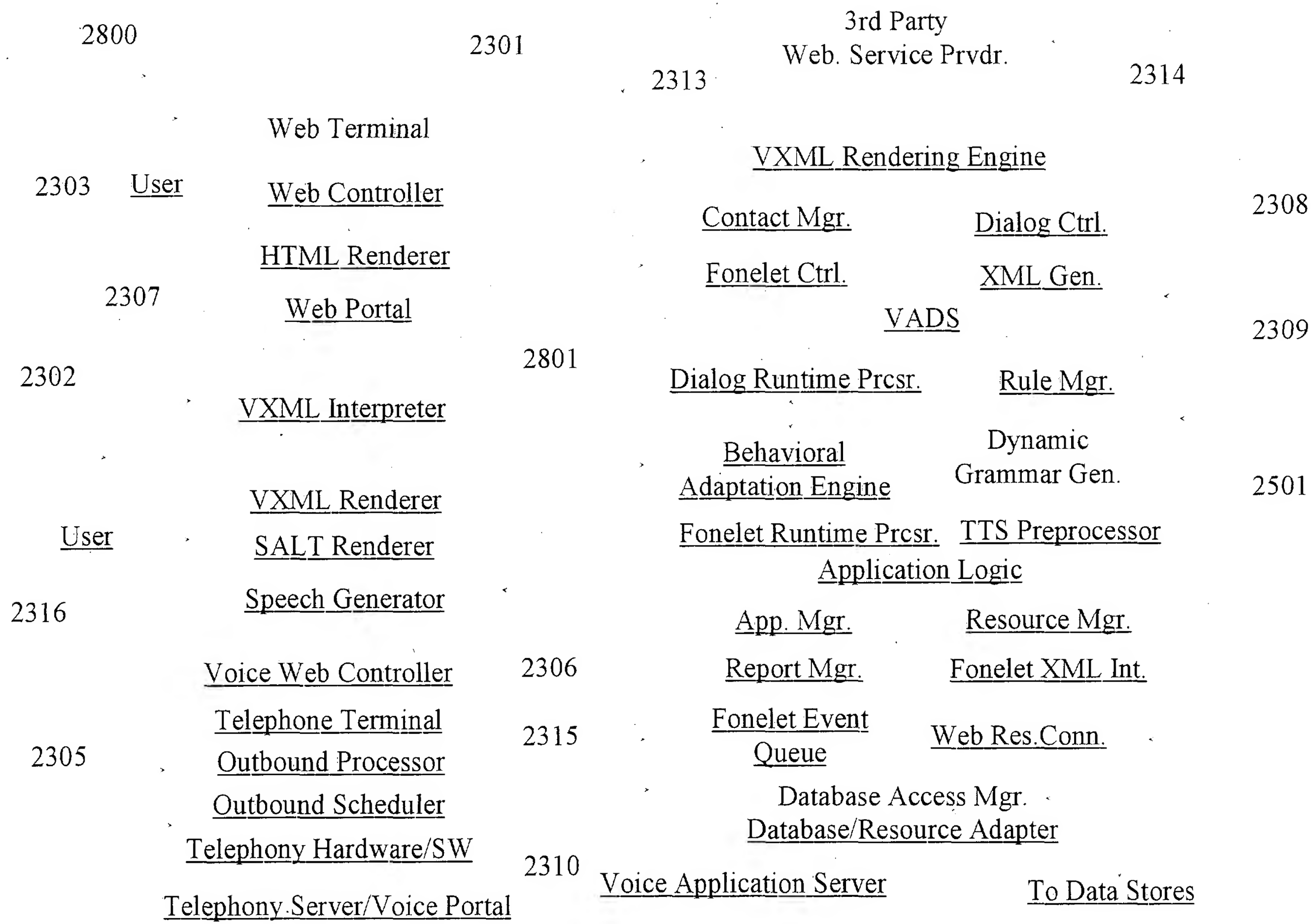

2800
2301
3rd Party
Web. Service Prvdr.
2313
2314
Web Terminal
2303 User
Web Controller
HTML Renderer
2307
Web Portal
2302
VXML Interpreter
VXML Renderer
User
SALT Renderer
Speech Generator
2316
Voice Web Controller
Telephone Terminal
2305
Outbound Processor
Outbound Scheduler
Telephony Hardware/SW
Telephony Server/Voice Portal
2801
2310
VXML Rendering Engine
Contact Mgr.
Dialog Ctrl.
2308
Fonelet Ctrl.
XML Gen.
VADS
2309
Dialog Runtime Prcsr.
Rule Mgr.
Behavioral Adaptation Engine
Dynamic Grammar Gen.
2501
Fonelet Runtime Prcsr.
TTS Preprocessor
Application Logic
App. Mgr.
Resource Mgr.
2306
Report Mgr.
Fonelet XML Int.
2315
Fonelet Event Queue
Web Res.Conn.
Database Access Mgr.
Database/Resource Adapter
Voice Application Server
To Data Stores

Fig. 28

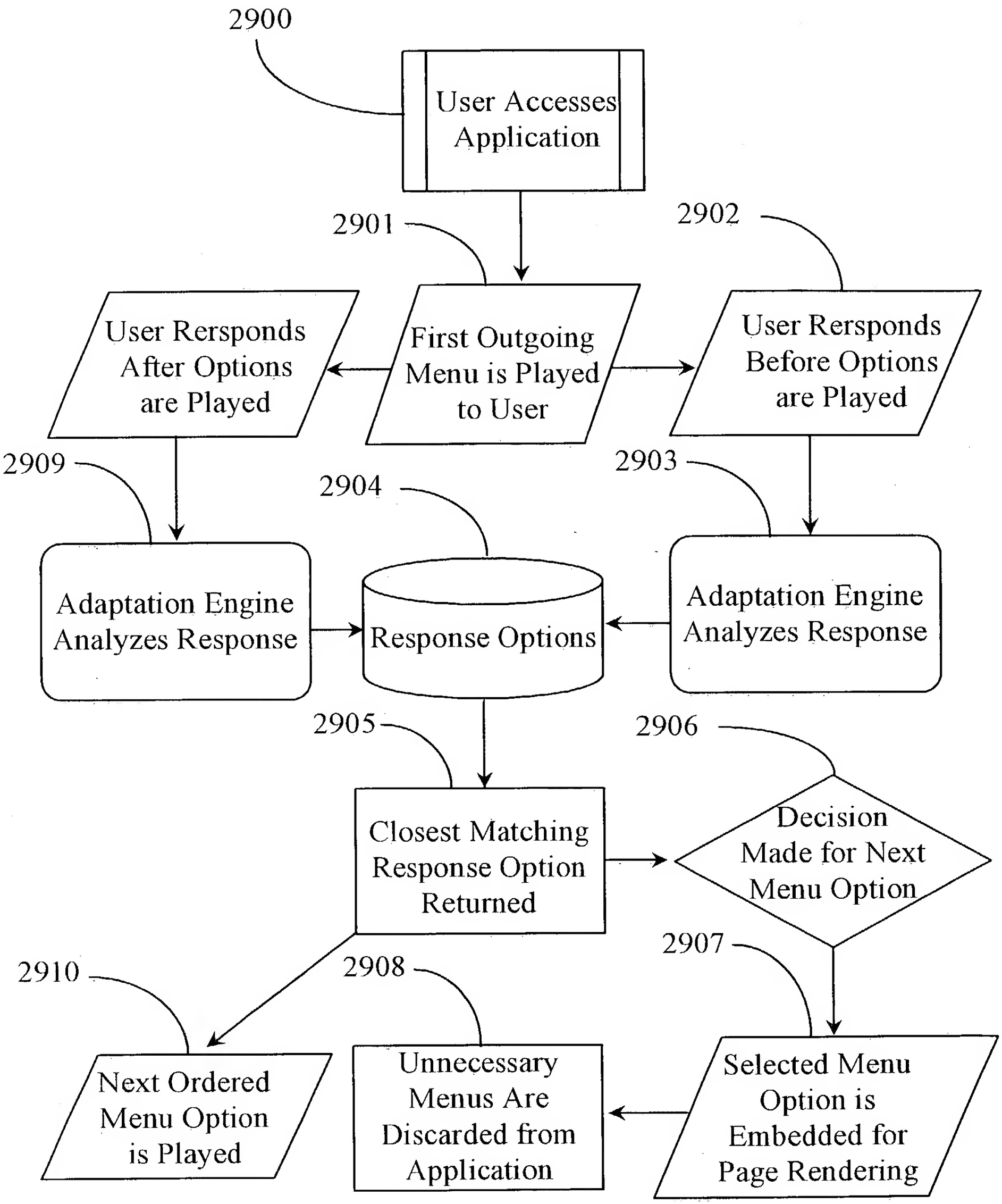

2900
User Accesses Application
2901
First Outgoing Menu is Played to User
2902
User Rersponds Before Options are Played
User Rersponds After Options are Played
2903
2904
2909
Adaptation Engine Analyzes Response
Response Options
Adaptation Engine Analyzes Response
2905
2906
Closest Matching Response Option Returned
Decision Made for Next Menu Option
2907
2910
2908
Next Ordered Menu Option is Played
Unnecessary Menus Are Discarded from Application
Selected Menu Option is Embedded for Page Rendering

Fig. 29

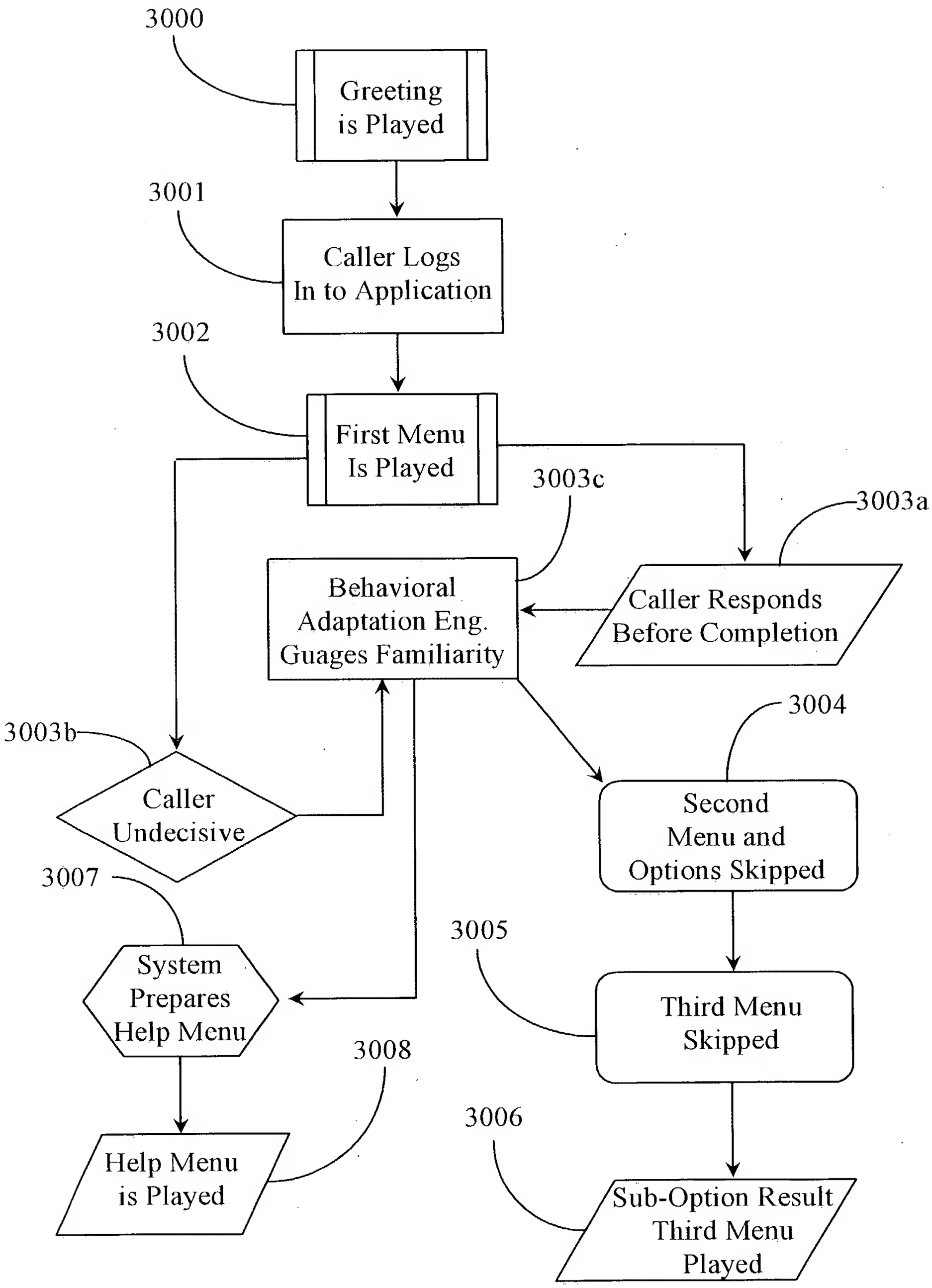

3000
Greeting is Played
3001
Caller Logs In to Application
3002
First Menu Is Played
3003c
3003a
Behavioral Adaptation Eng. Guages Familiarity
Caller Responds Before Completion
3003b
Caller Undecisive
3004
Second Menu and Options Skipped
3007
System Prepares Help Menu
3005
Third Menu Skipped
3008
Help Menu is Played
3006
Sub-Option Result Third Menu Played

Fig. 30

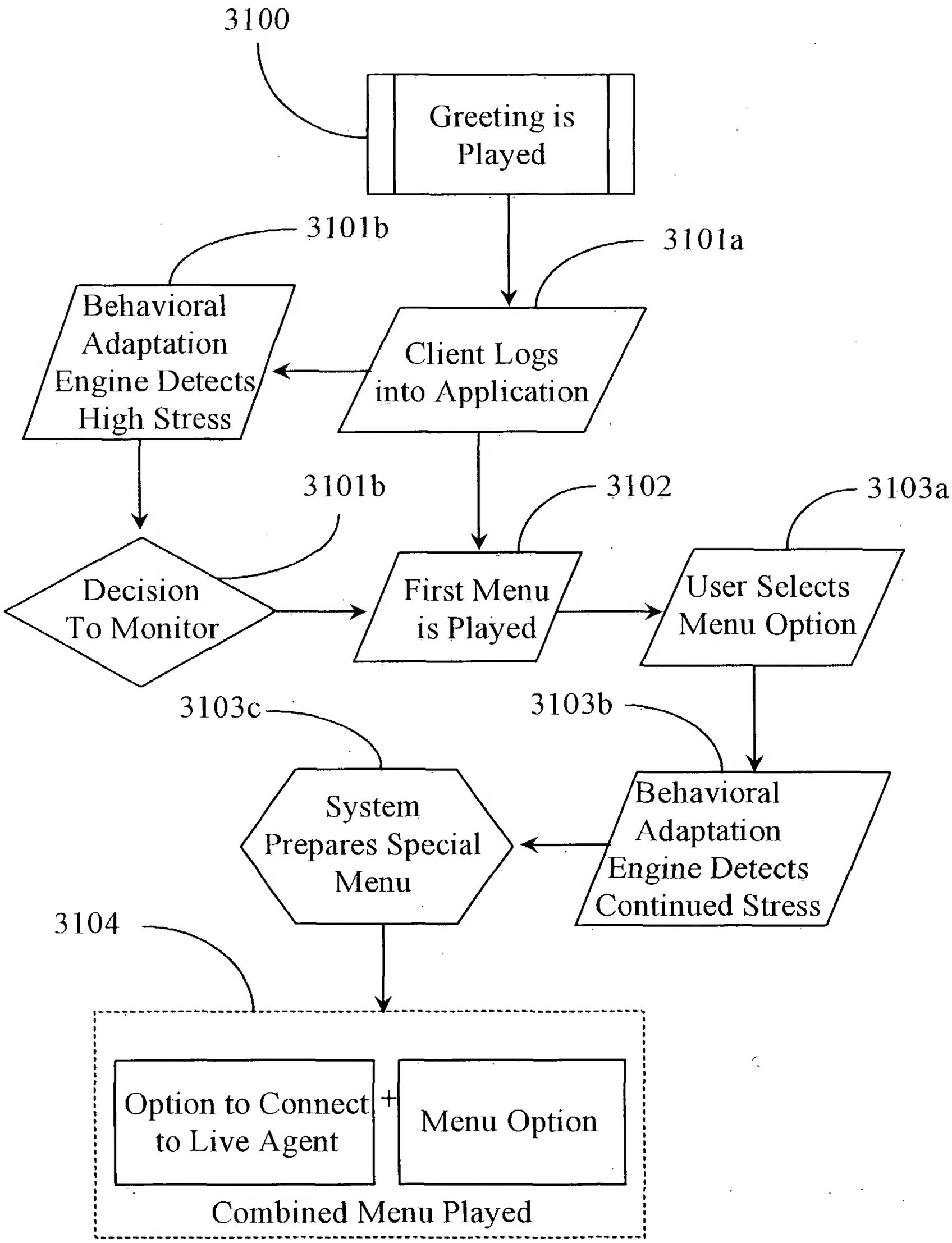

3100
Greeting is Played
3101b
3101a
Behavioral Adaptation Engine Detects High Stress
Client Logs into Application
3101b
3102
3103a
Decision To Monitor
First Menu is Played
User Selects Menu Option
3103c
3103b
System Prepares Special Menu
Behavioral Adaptation Engine Detects Continued Stress
3104
Option to Connect to Live Agent
+
Menu Option
Combined Menu Played

Fig. 31

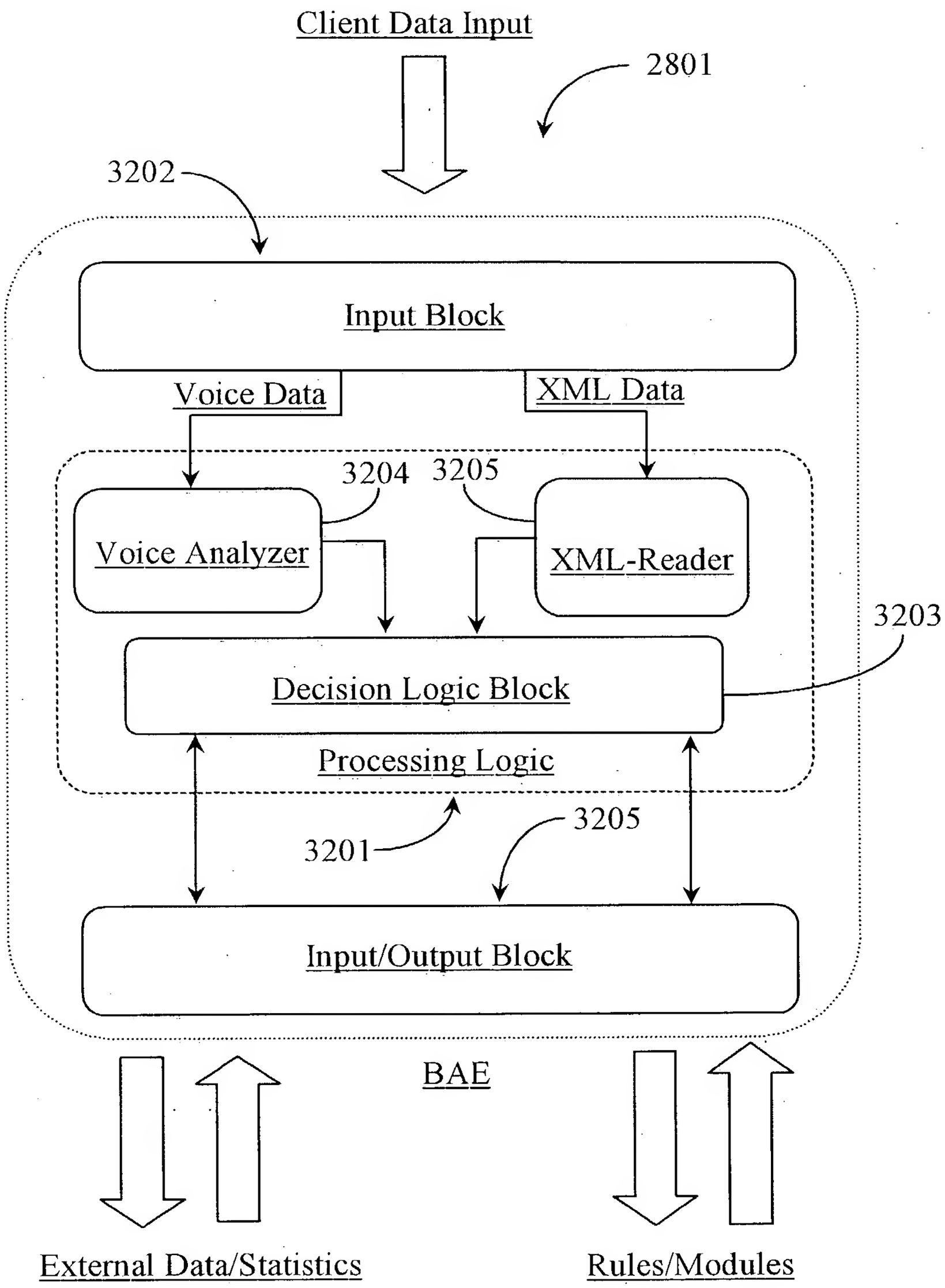

Client Data Input
2801
3202
Input Block
Voice Data
XML Data
3204
3205
Voice Analyzer
XML-Reader
3203
Decision Logic Block
Processing Logic
3201
3205
Input/Output Block
BAE
External Data/Statistics
Rules/Modules

Fig. 32